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TARP OVERSIGHT: AN UPDATE ON WARRANT REPURCHASES AND BENEFITS TO TAXPAYERS

HEARING

BEFORE THE

SUBCOMMITTEE ON
OVERSIGHT AND INVESTIGATIONS

OF THE

COMMITTEE ON FINANCIAL SERVICES

U.S. HOUSE OF REPRESENTATIVES

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TARP OVERSIGHT: AN UPDATE ON WARRANT REPURCHASES AND BENEFITS TO TAXPAYERS

Tuesday, May 11, 2010

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT
AND INVESTIGATIONS,
COMMITTEE ON FINANCIAL SERVICES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 11 a.m., in room 2128, Longworth House Office Building, Hon. Dennis Moore [chairman of the subcommittee] presiding.

Members present: Representatives Moore of Kansas, Adler; and Biggert.

Chairman MOORE OF KANSAS. This hearing of the Subcommittee on Oversight and Investigations of the House Financial Services Committee will come to order. Our hearing this morning is entitled, "TARP Oversight: An Update on Warrant Repurchases and Benefits to Taxpayers."

This is our 10th Oversight and Investigations hearing this Congress, and our 4th focused on our top priority, TARP oversight. Today's hearing is a follow-up to our first TARP warrants hearing last July. We will begin this hearing with members' opening statements, up to 10 minutes per side, and then we will hear testimony from our witnesses.

For each witness panel, members will each have up to 5 minutes to question our witnesses. The Chair advises our witnesses to please keep their opening statements to 5 minutes to keep things moving so we can get to members' questions. Also, any unanswered questions can always be followed up in writing for the record.

Without objection, all members' opening statements will be made part of the record. I now recognize myself for up to 5 minutes for an opening statement.

Leading up to our first TARP oversight hearing focused on the issues of warrant repurchases last July, there were a number of concerns raised that taxpayers were not seeing maximum returns on their investment. I wrote a letter to Secretary Geithner last June expressing that, "I am concerned with recent reports that financial institutions that received TARP funds are lobbying to buy back warrants the U.S. Government received for providing taxpayer assistance at a reduced or minimal value. I strongly urge you to utilize your authority to maximize the best deal for taxpayers."

I copied on that letter our TARP oversight entities, including the Congressional Oversight Panel (COP) and SIGTARP. Within a few days, I received a response from both that they would investigate further.

Before our July hearing, COP reported that at that time, taxpayers were receiving only 66 percent of warrants' value compared to their best estimate of their worth. With the mounting pressure from Members of Congress, the TARP oversight bodies, and the general public, I was pleased to learn the morning of our July hearing that Goldman Sachs announced they would buy back their warrants for $1.1 billion. That represents a 23 percent annualized return taxpayers received on the original $10 billion investment in the firm.

At the hearing I said, "That sounds pretty good, but is it good enough?" Since that time, other large transactions include: Morgan Stanley agreeing to pay $950 million to repurchase their warrants; JPMorgan Chase auctioning their warrants for $950.3 million; and Bank of America auctioning their warrants for more than $1.5 billion.

To answer my question from the July hearing, "Are these returns enough", I will read from the written testimony of our witnesses today.

Professor Linus Wilson says, "Oversight works." And that is a quote.

Mr. Atkins, for the Congressional Oversight Panel says, "The Panel has been pleased to see that Treasury's performance in this area has improved dramatically since we first analyzed its original warrant dispositions."

Professor Robert Jarrow remarks, "It is my belief that the Treasury's warrant repurchase program has been a success."

In SIGTARP's audit that we will discuss today, they write, "To its credit, Treasury has generally succeeded in negotiated prices from recipients for the warrants at or above its estimated composite value."

I will note that to the benefit of taxpayers, SIGTARP and COP rarely if ever hold back on being critical of various TARP programs and financial stability efforts, so those comments tell me that the program its really working pretty well.

We should not lose sight of the forest for the trees, and before we focus on ways to improve this program, let me stress the TARP warrants program has worked and worked well, providing over $6 billion of additional returns for taxpayers, with billions more expected. And that is beyond the $181 billion repayments of the initial TARP investment. If you add the $14 billion in total dividends, interest and distributions from TARP recipients today, taxpayers have received an additional $20 billion on top of the normal repayments.

If Congress had enacted the Bush Administration's original 3-page proposal for TARP, essentially a $7 billion blank check with no oversight and no strings attached, taxpayers would likely not have seen these additional returns today and would be left with the tab. But by authorizing the use of warrants, creating strong oversight entities like SIGTARP and COP, which have produced thousands of pages of oversight reports that are available online, and

adding the requirement that taxpayers must eventually be fully repaid, TARP will have done its job to both stabilize the economy and fully protect taxpayers.

And don't take my word for it. Consider what Professor David A. Walker from Georgetown University, a Republican witness at our Oversight and Investigations hearing last week, said, "I believe that the TARP commitment was essential. It's my opinion that our economy would be rebounding much more slowly than it has if we had not implemented the TARP program."

While the TARP warrants have greatly benefited U.S. taxpayers, it is our duty to explore the program fully and ensure that it is as transparent and run as well as possible. For example, I hope we explore policy questions looking at the differences between the public auction and direct negotiations with Treasury. Is one option better than the other? How do we ensure there is consistency of outcomes over a subjective process in negotiating a fair value for the warrants? Also, how do TARP warrants work for smaller financial institutions compared to large ones?

I look forward to hearing the testimony of all of our witnesses today as we continue working hard to provide tough oversight of TARP and to ensure taxpayers are fully protected.

Chairman MOORE OF KANSAS. I now recognize for 5 minutes the ranking member of the subcommittee and my colleague from Illinois, Ranking Member Judy Biggert.

Mrs. BIGGERT. Thank you, Mr. Chairman, and thank you for holding this hearing which is a follow-up to our hearing last July. It is important that we continue to have hearings like this to ensure that taxpayers are getting the best return on their TARP investment. I have concerns that taxpayers may not be getting the best possible return, and some witnesses have noted that the Treasury lacks the internal controls needed to measure whether a high enough price was set for warrant repurchases or sales.

I am also concerned that in addition to the 18 warrants Treasury holds in financial institutions that have exited TARP, Treasury still holds warrants for 237 companies that have yet to exit TARP. SIGTARP's April 20th quarterly report lists a number of companies that are late on their CPP dividend payments. EESA authorizes Treasury to appoint members to the boards of directors of such financial institutions.

Does the Treasury plan to appoint government officials to these boards of directors of these delinquent financial institutions? I look forward to learning about Treasury's plans regarding these issues.

And finally, I am concerned about the Administration's interpretation of the authority it thinks it has to use TARP funds. We have an auto bailout, a mortgage modification program, and potentially a small business program, all of which seem to stretch beyond the original intent of the use of TARP funds; and, coupled with AIG and the Fannie Mae and Freddie Mac bailouts, it caused a significant loss of TARP and taxpayers' money.

What is Treasury's justification for these activities?

In addition, what is the Administration's plan to end this program, end bailouts, including that of Fannie Mae and Freddie Mac, and what is the exit strategy and what is the timeline? We need to put an end to the government picking winners and losers in the

marketplace, which has facilitated unfair competition—competitive advantages for some businesses and completely abandoned others.

So I look forward to hearing from today's witnesses and I yield back the balance of my time.

Chairman MOORE OF KANSAS. Thank you to our ranking member.

I am pleased to introduce our first witness this morning. Mr. David Miller is the Chief Investment Officer for the Office of Financial Stability in the Treasury Department. Without objection, sir, your written statement will be made a part of the record.

Mr. Miller, you are recognized for 5 minutes.

STATEMENT OF DAVID N. MILLER, CHIEF INVESTMENT OFFICER, OFFICE OF FINANCIAL STABILITY, U.S. DEPARTMENT OF THE TREASURY

Mr. MILLER. Chairman Moore, Ranking Member Biggert, thank you for the opportunity to testify before you today regarding warrants received in connection with the Troubled Asset Relief Program. The Emergency Economic Stabilization Act of 2008 mandates that Treasury, with certain exceptions, receive warrants in connection with the purchase of troubled assets. These warrants provide taxpayers with an additional potential return on the Federal Government's investment.

I will focus my testimony today on TARP's warrant disposition process, and I will highlight our consistency, commitment to transparency, and successful results on behalf of taxpayers.

Of the $245 billion that was invested in financial institutions, $177 billion, or 72 percent, has been returned to pay down the deficit, and taxpayers have earned a modest profit on those investments, including more than $6 billion in warrant proceeds. These proceeds consist of approximately $3 billion from repurchases by issuers at agreed-upon fair market values and approximately $3 billion through public auctions. For these 44 institutions, Treasury received an absolute return of 4 percent on its investment from dividends and an added 5 percent return from warrant sales, for a total absolute return of 9 percent.

At this time, I will discuss our process for warrant valuation and disposition. Upon redemption of preferred stock issued to Treasury, a financial institution has a contractual right to repurchase its warrants held by Treasury at a mutually agreed upon price representing fair market value. Determining fair market value is challenging, especially given the limited comparable market data for long dated warrants. As a result, Treasury devised a comprehensive process to evaluate repurchase bids from financial institutions. Market quotations, comparables, independent third-party valuations and model valuations are the three primary valuation methods.

Treasury aggregates the data from internal and external valuation sources to determine an estimated fair market valuation range. The Office of Financial Stability has maintained a consistent valuation process to treat each financial institution fairly and similarly.

Treasury contracted Dr. Robert Jarrow, finance professor at Cornell University and noted options expert, to review Treasury's war-

rant valuation process. Dr. Jarrow concluded that Treasury's valuation methodology is fair to participating banks and taxpayers and consistent with industry best practice and the highest academic standards.

Treasury has managed a transparent warrant disposition process. Treasury has published information on all CPP transactions, including investments, repayments, warrant repurchases, and auctions on financialstability.gov.

This past January, Treasury released the Warrant Disposition Report. This report provides extensive analysis for each warrant repurchase and auction. We note that the SIGTARP audit release this week concluded that Treasury has successfully negotiated prices that were at or above Treasury's estimated range of fair value. This report also described Treasury's valuation methodology and it did not suggest any modifications. However, SIGTARP made recommendations regarding documentation of the negotiation process and ensuring that consistent information be provided to issuers seeking to repurchase their warrants.

Treasury is carefully reviewing these recommendations and will make appropriate changes to its procedures.

Throughout the warrant process, Treasury remains committed to providing the public with comprehensive detail and informative analysis.

Following the repayment, a bank may notify Treasury that it does not intend to repurchase its warrants or it may not agree with Treasury on a price. As a result, Treasury has sold these warrants through public auctions. The warrant auctions have successfully attracted many bidders and have been oversubscribed multiple times. This has resulted in clearing prices in excess of the reserve price set by Treasury.

These auctions have created a legitimate market, with abundant information and significant participation to determine a fair market value. Since auction warrants have achieved stable aftermarket prices, we believe the Treasury has received fair value.

Implied volatility is one metric for measuring warrant disposition value. Generally, the higher the implied volatility, the greater the value Treasury receives. On average, Treasury has received better pricing, or higher implied volatility, for negotiated transactions than for auctions. In addition, the size of the warrant disposition has impacted the price Treasury has received. Treasury found that smaller warrant positions received, on average, a lower implied volatility. This differential is from a number of factors, including a larger liquidity discount and relatively higher transaction cost that would be incurred for smaller position auctions.

Treasury intends to continue to execute a comprehensive and transparent process which achieves fair market values and protects taxpayer interests. This program has been extremely successful and Treasury will continue to strive for optimum results on behalf of taxpayers.

I look forward to answering your questions. Thank you.

[The prepared statement of Mr. Miller can be found on page 52 of the appendix.]

Chairman MOORE OF KANSAS. Thank you, sir, for your testimony.

I now recognize myself for 5 minutes for questions.

First, Mr. Miller, let me commend you, Assistant Secretary Allison, Secretary Geithner, and the entire team at Treasury for the work that you do, especially as we review the success we have seen with the TARP warrants program.

Before I focus on TARP warrants, I have a letter addressed to Secretary Geithner that I just signed today, discussing several items relating to TARP, but also my desire that Treasury redouble its effort and try to translate the success we have seen in the TARP warrants program to improvements in foreclosure mitigation.

Will you be sure the Secretary receives this letter and responds in a timely manner, Mr. Miller?

Mr. MILLER. I will.

Chairman MOORE OF KANSAS. Thank you.

Mr. Miller, I don't think it is a surprise that the negotiations with Morgan Stanley, as reported by SIGTARP, were difficult and not clear-cut. Major negotiations are rarely straightforward, and I am glad Treasury was able to obtain an additional $50 million more than the Warrant Committee originally approved.

Will you discuss generally how difficult these decisions and negotiations are and what factors does Treasury consider when seeking maximum return for taxpayers?

Mr. MILLER. Thank you for the question.

As I highlighted in my written testimony, there is a lot of uncertainty about the value of these warrants, particularly prior to launching the first auctions. Because there are no market prices, we employ a multipronged strategy which looks at market prices, looks at model valuation, and we also have a third-party independent contractor.

When we create this range of valuation, there is still no single point estimate that one can nail down as the exact value. It is a range. There is uncertainty. We take this valuation after a lot of discussion and create a range. When we enter into the negotiation process, we have an idea of this range, and often some banks are way off, which requires a lot of conversations to explain how we arrive at the process and the inputs that go into it.

The valuation ranges are highly sensitive to the inputs that go in. So it is quite important that we do have a discussion with the issuers if they want to repay. Some are more sophisticated. Larger banks tend to be more sophisticated than the smaller banks.

Also, reasonable people can disagree about these inputs, which is why we use more than just our model. We like to go out to the marketplace and get a sense of where things trade. I also think the negotiation process is quite dynamic. It is going to be unique to each issuer, and one can't follow exactly a checklist of exactly the same information, the same schedule of conversations, because we are trying to get the best value for taxpayers.

And I think the point regarding how have we done in these negotiations, again, what we are always thinking about is can we get a price that is as good as or better than what we would be able to sell these in the marketplace, understanding that there is no quote that we can look at, but getting a sense of what we can sell it for.

Chairman MOORE OF KANSAS. Thank you, Mr. Miller.

Mr. Atkins from COP, on our second panel, points out that in their estimate, auctions yield 110 cents on the dollar, while direct negotiations with Treasury yield 93 cents on the dollar. But Professor Jarrow points out the added cost by setting up an auction, so the advantages may not be as clear-cut.

Does Treasury have a preference between auctions or direct negotiations? And what considerations are made by Treasury in this regard, sir?

Mr. MILLER. Thanks for the question.

We have looked at the comparison between our results from auctions and negotiations. And what we found—since we only do auctions for positions greater than $5 million, which is the threshold to list them on the New York Stock Exchange—is that on average, we have actually gotten 35 percent volatility for the negotiated warrants versus 33 percent at auction on the auction warrants, which suggests that we are doing slightly better in the negotiations, on average.

We don't have a preference, contractually, in the CPP preferred stock agreement. The banks have a right to repurchase the warrants under this program where we have to agree on fair market. We believe there are certainly cases where we can do better than what something would be sold for in the marketplace. I think as we released in our January report, putting all the detail out on the negotiated transactions as well as the first three warrant auctions, that we have done so.

Chairman MOORE OF KANSAS. Thank you, sir. And I have a couple of additional questions, but my time is just about out. So we will submit those in writing and ask if you would respond to those, sir.

Mr. MILLER. Thank you.

Chairman MOORE OF KANSAS. At this time, I will recognize the ranking member for questions.

Mrs. BIGGERT. Thank you, Mr. Chairman.

Mr. Miller, does the Treasury Department have plans to place members on the boards of directors of the financial institutions that participated in the capital purchase programs but have missed the dividend payments? I think it was up by the time—the sixth quarter, you are supposed to put in two members of the board of directors?

Mr. MILLER. Thanks for that question.

Just to step back, I think you are referring correctly to the Capital Purchase Program. If an institution misses its dividend payment for six quarters, Treasury has the right to nominate someone for the board of directors. There have been a number of firms that have missed their dividend payments for several quarters. We have not yet had one miss it for six, although we are currently considering our options.

This is a standard covenant in many financial agreements that if the bank does miss dividends, the owner of that security would have certain rights. But as far as putting government officials on the boards, we are not considering doing that.

Mrs. BIGGERT. So it would be just—who would you put on the boards?

Mr. MILLER. We are precluded from actually having a government official, the legal interpretation is, but we would consider, as we have done in other cases with larger investments, looking for independent board members to provide an independent voice.

Mrs. BIGGERT. In regard to the legality of the foreclosure mitigation program, HEMP, the Treasury Department has cited an internal legal memorandum that explains the authority for Treasury to fund HEMP with TARP funds. The most recent COP report, however, explains that the Treasury Department has asserted the attorney-client privilege over this memorandum.

Why wouldn't the Treasury Department simply disclose the memo describing its authority to fund HEMP through TARP? Shouldn't this be made available to the members of this committee? I know that portions of it have been made available, and with at least $50 billion of money, taxpayer money on the line, I think that this committee and the Congress deserve at least a Treasury memo explaining the legality of funding this program.

It seems to me that the thing originally about TARP was that the money that would come back was going to go into the fund to pay back the deficit, to pay back the debt, rather than to fund other programs.

Mr. MILLER. The housing program—and you have raised some important questions—is not something that I have responsibility for, so I would be happy to take those questions back to Treasury.

Mrs. BIGGERT. Would you take that back, so we can get an answer in writing?

Mr. MILLER. Sure.

Mrs. BIGGERT. Thank you.

The SIGTARP has issued an audit that was critical of the method the Treasury used to document its warrant negotiations, and I think the chairman addressed this a little bit, but they cited the lack of any internal controls in the negotiation process.

What are the internal controls?

Mr. MILLER. I would be happy to discuss a little more about the report, because we have gotten a chance to review it.

First, we feel we have quite robust controls, as far as we have something called the Warrant Committee where staff prepares memos to review the valuation, all the three methods. That committee will meet and discuss it and ultimately provide a recommendation to the Assistant Secretary for Financial Stability, Herb Allison. He may accept or reject that recommendation, but there is a lot of interaction along the way.

As far as the negotiation process, we—again, each negotiation is dynamic. We are currently reviewing the recommendations made by the SIGTARP which really entail better documentation of the negotiation process, and it is something we are certainly—

Mrs. BIGGERT. Would this include testing of whether Treasury was able to acquire a favorable warrant sale price or whether the taxpayer lost money on the negotiations?

Mr. MILLER. I think we certainly look at it—it is very hard to make a comparison, as valuations done solely by model are going to be subjective. People will have different views, which is why we use multiple inputs. You can't both do a negotiation, if successful,

and sell them into the market. And so you don't have a perfect market price.

But we do evaluate very closely what price we receive, and if we believe that will be better than what we get in the market price. So that is what guides our negotiating. And we have been very consistent in how we apply our valuations, although each negotiation is going to be different.

Mrs. BIGGERT. But isn't SIGTARP wanting to have testing to see the result?

Mr. MILLER. I believe the focus of his report was really two areas. And again, I think we are always supportive of our oversight bodies helping us to improve the process. The first one is regarding our Warrant Committee and the minutes that are taken. And just to provide a little context, the committee minutes itself detail who is present, the recommendation made, the date, and the time. Attached to that committee minutes is a detailed memo that goes through how we arrive at our valuation ranges, and really is the basis for discussion of that committee meeting. So it is quite a lot of detail.

However, the SIGTARP noted that it was a little bit difficult in the audit of that to find out exactly the key decision point, so we are certainly going to review that and look to add more information so it is easier to follow along.

Mrs. BIGGERT. Thank you.

Chairman MOORE OF KANSAS. We don't have any other members present besides myself and the ranking member, so I think we have agreed that we would like to each have up to 5 additional minutes for additional questions, if you would, sir. And I thank the ranking member for her agreement.

We learned a lot from the report Treasury released in January on the warrants program. Is that something Treasury could release semiannually? And before you respond, Mr. Miller, have the recommendations and oversight provided by SIGTARP, COP, GAO, and Congress been helpful over the past year-and-a-half in improving the administration of TARP and our mutual goal of stabilizing our economy while trying to fully protect taxpayers?

Mr. MILLER. I will take the first one first. The report was certainly something that we had always wanted to do. Leading up until January, we certainly were concerned about releasing too much information too early because we were concerned that the banks that we negotiate with would take advantage of it and that could potentially hurt taxpayer returns.

As we were able to successfully launch the auctions, we felt very comfortable that if we could not reach an agreement with the bank, we had an extremely viable alternative to sell them in the marketplace, so we did not have to in any way lower our standards or accept prices that we did not think were fair. So once we did that, we felt comfortable releasing a report. We certainly plan to release additional reports like that going forward.

Chairman MOORE OF KANSAS. Thank you, sir.

And finally, Mr. Miller, Professor Wilson raises concerns with regard to the proposed small business lending fund and small firms being able to get rid of their warrant without any benefits to taxpayers. Would you discuss this issue generally of how TARP war-

rants relate to small and big firms? And I have said throughout financial regulatory reform that responsible community banks should not be subject to enhanced scrutiny. The new oversight system should focus on the Wall Street banks and nonbanks, like mortgage brokers, that did the most damage.

Should we focus on the larger institutions to achieve the maximum gains for taxpayers?

Mr. MILLER. First, with regards to what is known as the SBLF, the Small Business Lending Fund, that is in a proposal stage. The Administration put forth a proposal which is meant to allow banks to get attractive capital so that they could increase their small business lending. That is still in the design phase, and I understand it is still with Members of Congress.

With regards to the warrants, it makes no indication—we certainly have not indicated that we would cancel any warrants, so I am not sure where that view is coming from. That was never an intention.

Regarding small and large institutions, I think clearly the bulk of the dollars went to the largest institutions. Those are also the institutions that have repaid the lion's shares of the $177 billion that has been repaid to date.

The 650 or so remaining institutions in the Capital Purchase Program are small institutions. We still treat them equally. They are certainly more difficult to value the warrants. Many of them are private institutions which don't have warrants that are the ones we are talking about today. But the smallest ones certainly trade differently if we were to sell them into the market, so that is a challenge we are certainly working through as we go forward in the best way to monetize those if we don't reach agreement on repurchase as these banks continue to repay.

Chairman MOORE OF KANSAS. Thank you, sir.

And the Chair now recognizes again the ranking member for up to 5 minutes.

Mrs. BIGGERT. Thank you, Mr. Chairman.

Just going back a little bit to the previous question that I had, I think that SIGTARP found that unless there are sufficient internal controls and documentation—and I am glad to hear that they are going to do more of that because, really, fairly or unfairly, the criticism of the third parties, it is really subjecting themselves to the fact that they can be criticized for picking winners and losers unless there is that—that the price can be properly scrutinized, even though it is after the fact of the negotiation, and to ensure that taxpayers receive top value for their investments. Would you agree with that?

Mr. MILLER. I think analysis of the value we are getting is absolutely important, and we welcome that. We do our own, and we welcome others to do so as well. But I would also add that these ultimate model valuations that people would use to test are highly sensitive to the volatility, which is one of the major inputs into determining that value, and so can be used, really, any result sum, if they were wanting to get to a number that was either very high or very low. What we are trying to do is find fair market value; what would the market pay for this? And so that is a slightly different process than some might go through.

We have seen a number of reports out in the press where people will make sort of outrageous claims that we could have gotten "X," but they can't substantiate it.

Mrs. BIGGERT. So what is the Administration's plan, including the time-lining for ending the TARP program? And when will this be revealed to us?

Mr. MILLER. That is a very important question. And I think, as you know, the authority to make new investments expires on October 3rd of this year. We have also already wound down a number of programs, the Asset Guarantee Program, the Target Investment Program. The Capital Purchase Program ceased making new investments in December of last year, and we have already seen a huge amount of repayment which we are very encouraged by.

I think the principle is clearly that we are reluctant holders of these securities and will look to monetize them as soon as is practicable, but taking into consideration, certainly, the prices we could get, financial stability overall. But again, we are working towards that, but we are doing it prudently and sensibly.

Mrs. BIGGERT. One last question, Mr. Miller. If ever implemented, do you know where the funding for the Administration's proposed small business lending fund will come from? I think that the first proposal was for $30 million—a $30 billion fund to come from TARP. I understand that a revised plan has been issued, but it is silent on how the program is to be funded. And some people say that this is nothing but TARP II without any potential benefit or payback to the taxpayer.

Mr. MILLER. I don't know the status, as well. I know initially it was proposed to come out of TARP. There were good reasons why it should not be part of TARP; namely, over time, the stigma associated with banks taking TARP money became quite difficult, and they were concerned about some of the issues, both stigma and some of the restrictions that came with it. And that was really hurting the system overall for small banks that may benefit from that capital and be able to lend more. But I don't have a view on certainly which would be a better way to fund it, and I don't know the status of it.

Mrs. BIGGERT. Is there a projection of losses? I think some people have said $8.4 billion or 28 percent of the fund?

Mr. MILLER. Depending on how it ends up getting structured, there have been a number of estimates that show varying degrees of subsidy or loss.

Clearly, if you are giving capital that may be below market rate to encourage banks to take that capital, it is not going to be 100 cents on the dollar, if you will; there will be a subsidy. But I don't think there is a final estimate of that for the Small Business Lending Program.

Mrs. BIGGERT. Thank you. I yield back.

Chairman MOORE OF KANSAS. Thank you.

And thank you, Mr. Miller, for your service and your testimony here today. You are now excused, and I will invite the second panel of witnesses to please take your seats. Thank you sir.

I am pleased to introduce our second panel of witnesses. First, we have Mr. Kevin Puvalowski, Deputy Special Inspector General for TARP.

Second—while we normally have Professor Elizabeth Warren testify on behalf of the Congressional Oversight Panel on TARP—we are pleased to have a Republican appointee, the Honorable Paul Atkins, and a former Security and Exchange Commissioner represent COP today.

Next, we will hear from Professor Robert Jarrow, the Ronald P. and Susan E. Lynch professor of investment management and professor of finance and economics at the Johnson School of Cornell University.

And finally, we will hear from Professor Linus Wilson, assistant professor of finance, B.I. Moody III College of Business at the University of Louisiana at Lafayette.

Without objection, the witnesses' statements will be made a part of the record.

Mr. Puvalowski, you are recognized, sir, for 5 minutes.

STATEMENT OF KEVIN R. PUVALOWSKI, DEPUTY SPECIAL INSPECTOR GENERAL, OFFICE OF THE SPECIAL INSPECTOR GENERAL FOR TARP (SIGTARP)

Mr. PUVALOWSKI. Chairman Moore, Ranking Member Biggert, and members of the committee, it is a privilege and an honor to testify today concerning SIGTARP's audit of Treasury's warrant disposition process which is being released today before this committee.

The audit, which focuses on the process and procedure that Treasury uses to sell warrants that it obtained through TARP, was intended to complement the Congressional Oversight Panel's July 2009 report that examined the warrant valuation methodologies themselves.

To its credit, Treasury has generally succeeded in negotiating prices for warrants at or above its internal estimated values. Our audit, however, identified two significant problems in Treasury's warrant disposition process that have led to failures in transparency and consistency that, if left unaddressed, could result in significant harm to the program.

The first deficiency is that Treasury does not sufficiently document important parts of the negotiation process. Treasury, for example, lacks detailed documentation supporting the decisions of the Warrant Committee, the committee that reviews TARP recipients' offers. Significantly, committee minutes generally do not reflect the factors considered by the members when making determinations whether to accept a bank's offer or their justifications or explanations for their decisions. Even more troubling, Treasury does not document the substance of its conversations with recipient institutions when it negotiates warrant repurchases, making it extremely difficult, if not impossible, to determine what actually happened.

This lack of documentation significantly limits the ability to test the consistency of Treasury's decision-making. Memories fade, Treasury officials leave office, and with the passage of time and the occurrence of intervening negotiations, different parties to a meeting or a conversation may have different recollections of what occurred.

When a committee decision or a brief telephone conversation can mean the difference of tens of millions of dollars for taxpayers, it

is a basic and fundamental element of transparency and accountability that the substance of that meeting or call be recorded contemporaneously.

SIGTARP was unable, for example, to determine with certainty what occurred during a key telephone conversation between Treasury and Morgan Stanley, a conversation that resulted in a $50 million swing for the taxpayer. Treasury failed to document the call, and the recollection of the participants as to what happened during that call differed very significantly.

The second significant deficiency is that Treasury does not have established guidelines or internal controls over how the negotiations proceed, and, in particular, as to how much information is shared with recipient institutions about the price Treasury is likely to accept for the repurchase of its warrants.

Descriptions provided to SIGTARP by several of the banks that engaged in negotiations with Treasury confirmed that Treasury was willing, for some banks, to provide clear indications as to what price it was prepared to sell the warrants. For other banks, Treasury was unwilling to share similar details.

Indeed, as detailed in the audit, the amount of information provided, the circumstances of what information would be provided, and the results of the negotiations were all over the lot.

While there may well be good reasons for treating different institutions differently in the context of the negotiation, because Treasury does not document the negotiations with financial institutions, and because there are no established guidelines or criteria for what information is shared or when it will be shared, it is impossible to determine with certainty, after the fact, whether the difference in the sharing information was justified or consistently applied, or if those different approaches were, in the final analysis, good or bad for taxpayers.

Until Treasury addresses these deficiencies, it risks subjecting itself once again, fairly or unfairly, to criticism from third parties that through TARP, it is favoring some institutions over others, picking winners and losers, irrespective of whether, in fact, it had legitimate reasons to take the negotiating positions that it did.

To address these deficiencies, SIGTARP's audit recommends that: one, Treasury should ensure that more detail is captured by the Warrant Committee meeting minutes; two, Treasury should document in detail, contemporaneously, the substance of all communications with recipients concerning warrant repurchases; and three, Treasury should develop and follow guidelines and internal controls concerning how negotiations will be pursued, including the degree and nature of information to be shared with repurchasing institutions concerning Treasury's valuation of the warrants.

We await Treasury's formal response to these recommendations.

Chairman Moore, Ranking Member Biggert, I want to thank you again for this opportunity to appear before you today, and I am pleased to answer any questions that you may have.

[The prepared statement of Mr. Puvalowski can be found on page 61 of the appendix.]

Chairman MOORE OF KANSAS. Thank you Mr. Puvalowski. I appreciate your testimony.

And the Chair will next recognize Mr. Atkins. You are recognized, sir, for up to 5 minutes.

STATEMENT OF THE HONORABLE PAUL ATKINS, MEMBER, CONGRESSIONAL OVERSIGHT PANEL, AND FORMER SECURITIES AND EXCHANGE COMMISSIONER

Mr. ATKINS. Thank you very much, Chairman Moore, Ranking Member Biggert, and distinguished members of this subcommittee. My name is Paul Atkins. I am a member of the Congressional Oversight Panel, and I appreciate very much this opportunity to testify about the Congressional Oversight Panel's work assessing the performance of the Treasury Department in managing and disposing of stock warrants that it has acquired in conjunction with the Troubled Asset Relief Program. I should note that the views expressed today in this testimony are my own. I will do my best to try to convey the Panel's views, but my statements cannot always reflect the opinions of our five very diverse thinkers.

The Panel is charged by statute to review the current state of the financial markets and the financial regulatory system and provide monthly reports to Congress assessing the effectiveness of Treasury's implementation of the TARP, including its disposition of stock warrants.

When Congress authorized the commitment of $700 billion to rescue the financial system, it also required that taxpayers participate in the upside if assisted financial institutions returned to profitability. This is achieved through Treasury's receipt of warrants to purchase common stock, or other securities, from the banks party to any transaction in which those banks received TARP capital, mainly through what is called the Capital Purchase Program or CPP.

In May of 2009, CPP-assisted banks began to repay their TARP assistance. The Oversight Panel in July 2009 evaluated the prices that Treasury negotiated for; at that time, 11 banks had purchased their warrants. We used the industry standard Black Scholes option pricing model adjusted to reflect the particular characteristics of the warrants that Treasury received under the CPP, and specifically the dividend yield and the 10-year duration. The Panel's analysis concluded that Treasury had received approximately 66 percent of our best estimate of the value of TARP warrants for these banks.

However, we acknowledged as well that these repurchases represented less than one-quarter of 1 percent of our best estimate of the value of all the CPP warrants that Treasury had acquired as of that time.

We also knew that Treasury's own valuation of warrants of these smaller banks incorporated an adjustment for the likely relative illiquidity of a stock of these banks, a step that the Panel did not apply because of the subjectivity of that particular factor.

The July report recommended that Treasury give serious consideration to employing auctions to dispose of warrants rather than relying heavily upon one-to-one negotiations with individual banks. Using a public auction for warrant repurchases would leave no room for speculation that Treasury either was too tough or too easy on a TARP recipient institution, while allowing banks to repur-

chase their warrants in competition with other market participants. The report noted the need for greater transparency in the Treasury warrant valuation and negotiation process and called for Treasury to publish periodic reports that provide details on the value determinations for the warrants that are being sold.

I should note that committee member Jeb Hensarling, at that time a member of the Oversight Panel, emphasized in particular his unease with Treasury's lack of disclosure. And I should also express my own concern with Treasury's lack of openness in its dealings with the public and with the Oversight Panel, as Representative Biggert raised.

The opinion that you mentioned, Representative Biggert, was addressed to me in my capacity as an Oversight Panel member, and as far as I am concerned, it is a public document. Treasury should not attempt to assert an inapplicable privilege to keep information submitted to a congressional oversight body out of the public domain.

In addition to the warrants received under the Capital Purchase Program and the Targeted Investment Program, Treasury also receives stock warrants in conjunction with the Auto Industry Financing Program. Warrants received as part of the initial assistance to General Motors and Chrysler were extinguished as part of the credit bid process in bankruptcy. As in the case of other private institutions, the warrants that Treasury received in relation to GMAC for a variety of preferred securities were immediately exercised on the investment date.

So in summary, the Oversight Panel is pleased to see that Treasury's performance in this area has improved dramatically since we first analyzed its initial warrant dispositions. The use of public auctions have clearly allowed for taxpayers to receive a solid return on their investments in these institutions and the transparency provided by public auctions allows transactions to take place in full public view. The panelists urge the Department to continue publishing the details of its internal valuations for each warrant disposition transaction, as it did most recently in January this year.

The Panel has also urged Treasury to provide more assurance that it is achieving consistency in the negotiated warrant sale price process.

The issues of transparency and consistency of outcomes will each become more important as Treasury moves to dispose of the warrants for the many remaining TARP-assisted small banks whose stocks are thinly traded. Taxpayers expect and deserve no less for the integrity of the process.

Thank you very much Mr. Chairman.

[The prepared statement of Mr. Atkins can be found on page 32 of the appendix.]

Chairman MOORE OF KANSAS. Thank you, Mr. Atkins, for your testimony.

The Chair next recognizes Professor Robert Jarrow. Sir, you are recognized for 5 minutes.

STATEMENT OF ROBERT A. JARROW, RONALD P. AND SUSAN E. LYNCH PROFESSOR OF INVESTMENT MANAGEMENT AND PROFESSOR OF FINANCE AND ECONOMICS, THE JOHNSON SCHOOL, CORNELL UNIVERSITY

Mr. JARROW. Good morning. I would first like to thank the committee for my invitation to testify.

Some relevant background on myself. I am an expert on risk management modeling and implementation. I wrote the first textbook on option valuation over 25 years ago. And since that time, I have continued to do research in this area. My models are currently used by the financial industry to value and to hedge both interest rate and credit derivatives. I have extensive consulting experience implementing derivative models, in practice.

I was engaged as an independent contractor by the U.S. Treasury during the summer of 2009 to audit their warrant valuation procedure. A summary of my valuation is available on the Treasury's Web site.

It is my belief that the Treasury's warrant repurchase program has been a success. It has generated sales fair to both U.S. citizens and to the banks and the TARP program. The Treasury warrants repurchase process is well constructed, containing two components, a negotiated repurchase and/or an auction sale to third parties.

In the negotiation process, the Treasury determines a warrant's fair price using the judgment of Treasury's internal experts in conjunction with three different price estimates, quotes from market participants, third-party valuations, and an internal model.

The Treasury's internal valuation model is based on best industry practice and the highest academic standards.

Early in the warrant repurchase program, in the summer of 2009, criticism of the Treasury's fair valuations appeared in the financial press and in the July 2009 Congressional Oversight Panel report. This criticism was unjustified because it was based on price estimates obtained from poor model implementations.

Since that time, the Treasury's valuations have converged to those of their critics. This convergence was due to changing market conditions. It was not due to a modification of the Treasury's methodology, except perhaps for the reduced use of a liquidity discount.

Let me explain these statements in slightly more detail. As it is well known, the top warrants are American-type call options on a bank's common stock with a 10-year maturity date. Valuing these warrants is a complex exercise involving the modeling of stock prices, stock price volatilities, dividends, and interest rates over the next 10 years.

Industry best practice is to use a modified Black Scholes model which assumes very simple evolutions for these quantities.

The crucial input is a stock price volatility used. The correct volatility input should be a forecast of the average stock price volatility over the next 10 years, and this is a very difficult quantity to estimate.

The early criticism of the Treasury's valuation estimates was mostly based on disagreements concerning this input. The correct approach is the one used by the Treasury and not that of the critics.

Since the early warrant repurchases in the summer of 2009, the stock market's volatility has declined. This decline in volatilities has caused the differences between the stock price volatility inputs of the critics and the Treasury to narrow, resulting in more similar warrant valuations.

As is typical of most option pricing techniques, the Black Scholes model also assumes that markets are frictionless, with no transactions cost and with infinite market liquidity.

Obviously, these assumptions are not satisfied for large sales of nontraded warrants. In this case, a liquidity discount is appropriate.

In the early repurchase of TARP warrants, the Treasury applied such a liquidity discount. As market conditions stabilized, liquidity discounts were less necessary in subsequent warrant sales. The critics' valuation estimates never included such a liquidity discount. This was the second important difference.

I am running out of time. I am used to lecturing.

I will conclude my testimony here, and I welcome questions from the committee.

[The prepared statement of Professor Jarrow can be found on page 37 of the appendix.]

Chairman MOORE OF KANSAS. Thank you, sir, very much, for your testimony.

The Chair next recognizes Professor Linus Wilson.

And I will remind each of the witnesses that your testimony will be received into the record. Thank you.

Mr. Wilson.

STATEMENT OF LINUS WILSON, ASSISTANT PROFESSOR OF FINANCE, B.I. MOODY III COLLEGE OF BUSINESS, UNIVERSITY OF LOUISIANA AT LAFAYETTE

Mr. WILSON. I am honored to be invited to appear before the subcommittee today. Thank you, Chairman Moore and Ranking Member Biggert.

While I teach and conduct research and finance at the University of Louisiana at Lafayette, the views that are expressed today are my own and not necessarily the views of my university or the State of Louisiana.

I received my doctorate of philosophy in economics at Oxford University in England in 2007. In addition to my other academic research in finance economics, I have written 14 academic papers on the TARP warrants government plans to buy so-called toxic assets from banks, the effectiveness of various types of capital in encouraging bailed-out banks to make good loans, and the "too-big-to-fail" problem.

Half of those papers on the bank bailouts have, to date, been accepted or appeared in peer-reviewed academic journals. We meet today on almost the 1-year anniversary of the first warrant transaction with Old National Bank Corp.

Much to my surprise, my research into the Goldman Sachs warrants and the first warrant repurchase with Old National Bank garnered considerable interest.

I argued that only through third-party sales and auctions could taxpayers hope to get the best prices. With pressure from this com-

mittee, the Congressional Oversight Panel, and me, Goldman Sachs announced its $1.1 billion repurchase of the taxpayers' warrants. That price was the closest price to my estimated fair market value of any bank up to that time. Several other very good negotiations for taxpayers followed.

Yet one outlier among the big investment banks was Morgan Stanley, which repurchased the taxpayers' warrants for $950 million, or $450 million less than the amount that I estimated for the Financial Times and Reuters.

It is alleged in the SIGTARP report released today that the top Treasury official for the TARP, Herb Allison, a Wall Street veteran, told the chief financial officer of the Wall Street investment bank Morgan Stanley the minimum price which the Treasury would accept for the taxpayers' warrants.

Homeowners don't want their real estate agents telling potential buyers what the minimum price is that they would accept for their house. Yet Mr. Allison, the taxpayers' agent, did just that, telling Morgan Stanley that he would accept $950 million to prevent private investors from pricing these very valuable securities at auction.

We need leadership in the U.S. Treasury that looks after taxpayers, not Wall Street investment bankers. Mr. Allison should be here to answer for these allegations made in the SIGTARP report.

The first auctions were in December 2009. Before December 2009, there were no traded options or warrants with expiration dates later than 2014. In December, taxpayers got higher prices than they were offered in negotiations. Since then, the auction and secondary market prices have increased in March, April, and May of 2010.

In addition, we have seen that in-the-money warrants, like those of Morgan Stanley and Goldman Sachs, have traded at premiums to short-term options with higher implied volatilities than short-term options.

We need to let markets, not backroom deals, price the big bank warrants. The Administration is asking Congress to give away taxpayers' warrants. The U.S. Treasury and the Administration today plan to squander a fair market value of warrants and preferred stock of approximately $3 billion by allowing almost 600 existing Capital Purchase Program recipients to cancel their warrants and convert their preferred stock in subordinated debt into the proposed small business lending fund.

If we add in the subsidies to new banks entering the fund which are not in the CPP, the subsidy to small banks and their shareholders would increase by $5.5 billion. That is, for a $30 billion fund, taxpayers should expect to lose $8.4 billion, or 28 percent of their investment, on the day the typical investment is made into the fund.

TARP was an emergency legislation enacted to stop a banking panic. I think policymakers can design better ways to stimulate growth through tax cuts, government spending or deficit reduction. Giving handouts to banks does not make any economic sense.

I think taxpayers should be rewarded for the investments they have made.

With the recovery in bank shares, the U.S. Treasury has collected $6.1 billion for the repurchases and auctions. I estimate that the fair market value that over 200 publicly traded banks and insurance company warrants, excluding AIG, which have not been sold prior to this hearing, were worth $4.1 billion on March 31, 2010.

Thank you for having me today. I look forward to your questions and perspectives.

[The prepared statement of Professor Wilson can be found on page 138 of the appendix.]

Chairman MOORE OF KANSAS. Thank you, Professor Wilson, for your testimony. I will now recognize myself for up to 5 minutes for questions.

Mr. Puvalowski and Mr. Atkins, since you represent SIGTARP and COP, would you discuss your views as to whether the Treasury Department has been receptive to criticisms and recommendations to improve the Tarp Warrants Program? And has their performance improved over time? Mr. Puvalowski or Mr. Atkins?

Mr. ATKINS. I think they have worked to try to increase their accountability and transparency and, as the SIGTARP's report and as the Congressional Oversight Panel's report from last year indicate, they have been making strides to that goal. Is it perfect yet? Probably not, but I think the transparency obviously is a thing that we want to try to achieve. Also, an equivalence of outcomes is ultimately the goal.

Chairman MOORE OF KANSAS. Thank you. Mr. Puvalowski?

Mr. PUVALOWSKI. One way in which Treasury has done a much better job over time is in terms of transparency. The Government Accountability Office, the Congressional Oversight Panel, and SIGTARP were all quite critical of Treasury in the early days of the warrant disposition process as to almost a complete lack of transparency. Treasury has done a pretty good job in responding to that criticism and the warrant report that was published in January was a significant step forward in terms of transparency in the program.

With respect to SIGTARP's recommendations in the audit that was released today, they are, in our view, very straightforward, very commonsense recommendations—that the process be documented better, that communications between Treasury and the recipient institutions be documented better. Right now, they are not documented at all. And that Treasury have some guidelines as to how the negotiations take place. Treasury has not yet responded to those specific recommendations, so we look forward to getting the response, and we will report an update on that in our next quarterly report.

Chairman MOORE OF KANSAS. Thank you, sir.

Professor Jarrow, I appreciate your perspective as an authority on model evaluations. Will you go into more detail as to how difficult it is to value warrants and address issues that these warrants values decay over time. While models are valuable, we know they don't always work as we saw in the recent financial crisis. Should Treasury be careful not to rely on mathematical formulas too much to ensure maximum returns for taxpayers, sir?

Mr. JARROW. Thank you for that question. So let's start first with the models, the models are approximations to a complex reality. And as an approximation, they contain errors. You need judgment to adjust the model for these errors.

Relying on a model alone to make judgments with respect to repurchase and sales would be a big mistake, especially for these financial instruments. They are what we call loan dated, they are what we call American type options. American type options are options that have a decision embedded within them to value them. You have to decide when over the 10 years you want to exercise the options. Those are very, very complex financial instruments and modeling them is correspondingly complex.

Chairman MOORE OF KANSAS. Thank you, sir. I would like to hear from each of you as to which provides the most value for taxpayers through the TARP Warrants Program, direct negotiations or options? And what public policy issue should Treasury and the Congress keep in mind as lessons from the use of these warrants and the TARP program. Professor Jarrow, we will start with you, sir.

Mr. JARROW. Thank you. One of the big issues in valuation is deciding what is called the amount of the liquidity discount. When you sell a large quantity of shares in the market, you don't get the price that you would get, you get a lower price than if you sold only a few shares and this liquidity discount is a key factor. When you do negotiation, you can avoid this market impact potentially. And secondly, when you do an auction, you have a third party cost you have to pay to the investment bank. So as a rule of thumb, you should always do negotiation first, and if negotiations fail, then I think having as an alternative an auction process is a very good idea.

Chairman MOORE OF KANSAS. Mr. Puvalowski, do you have any comments, sir?

Mr. PUVALOWSKI. The options that have taken place thus far did return a slightly better return just in terms of calculation investment return, but there haven't been enough options thus far to compare against the negotiated results, we haven't drawn a firm conclusion on that one way or the other.

Mr. ATKINS. And by definition, an auction obviously is a market price, it is better than any modeling price so that is ideally I think what we should strive for. It has been relatively easy with the big banks, as we get into the smaller banks it may get more problematic.

Chairman MOORE OF KANSAS. My time has expired, and I will have to yield now to the ranking member, please.

Mrs. BIGGERT. Thank you, Mr. Chairman.

Commissioner Atkins, a number of the Capital Purchase Program recipients have missed the dividend payments, it might not have reached six yet, but there is a whole list of those that have missed some of the payments. And after missing a sixth quarterly dividend payment, Treasury will have to place members on the board of directors of the financial institutions that participated, does this concern you?

Mr. ATKINS. Well, it does, obviously having the government even more involved in these sorts of private entities, we see it already

with respect to GM, Chrysler, GMAC, and AIG. And I think the importance will be the process of choosing those particular directors by Treasury, how open and transparent a process it is, and what sort of direction those directors will have.

Mrs. BIGGERT. And do you have any concerns regarding the Treasury's small business lending fund? You know what the original proposal was for TARP, but the latest iteration doesn't specify how it will be funded.

Mr. ATKINS. Yes, I think you brought up a very good point. I think the reason why it is probably not clear how it will be funded is that I don't believe that it can be funded from TARP under the statute, which is one of the issues for HAMP and HARP as well, and I think one of the reasons I asked for Treasury for that opinion.

Mrs. BIGGERT. I am glad you did bring that up. And that is why we want to probe further, and hopefully we will get a written response on that authority, thank you.

Has the Congressional Oversight Panel adopted a budget?

Mr. ATKINS. Well, apparently, we have one, I haven't actually seen it. I understand it has $5 million or so, but the specifics I am not—

Mrs. BIGGERT. How is it funded?

Mr. ATKINS. Apparently, the money comes through the Senate Rules Committee, from the Senate side.

Mrs. BIGGERT. I am glad they are paying for it. I am sure it is the taxpayers, but wouldn't it make sense to adopt a budget where the taxpayers know how much is being spent, and not just the Senate?

Mr. ATKINS. I agree; I think transparency is good. Obviously, that is, I think in your bailiwick as Members of Congress.

Mrs. BIGGERT. If possible, can you or the COP staff provide this panel with a full list of congressional field hearings at which a member of the COP has testified since the Panel's creation? Are there a lot of field hearings?

Mr. ATKINS. There have probably been about half a dozen or so field hearings. There is one, in fact, up in New York today. I am sure we can get that to you.

Mrs. BIGGERT. We would appreciate that. Then, given that large banks comprise a significant higher share of loans under $1 million, do you worry that the Administration's small business lending fund proposal to inject capital into the community banks will not have the desired effect of significantly increasing credit for small businesses?

Mr. ATKINS. Well, I think there is a big debate, in fact we are coming out with a report this week with respect to commercial lending. But I think there is a big debate as to whether it is demand or supply that is really affecting small business lending.

Mrs. BIGGERT. Thank you.

Professor Wilson, you compared the Treasury's first version of the small business lending fund to TARP 2, I think that is where it came from without any of the benefits to the taxpayers that TARP 1 had. Have you had an opportunity to examine the revised version of this program and how it would affect the Capital Purchase Program?

Mr. WILSON. I was looking at the fact sheet that was put on whitehouse.gov, which I think was dated February 2nd—if there is a more recent version I haven't seen it, and I would love to look at it.

Mrs. BIGGERT. Thank you.

Mr. WILSON. I would also say my thoughts about the small business lending program, my research has shown that if you give banks preferred stock that is senior to common, and managers try to maximize the value of common stock, not preferred stock. So, in essence, preferred stock adds leverage to their incentives and doesn't have desired incentives for banks that are undercapitalized.

Mrs. BIGGERT. It certainly didn't when they purchased Fannie and Freddie preferred stock, did it, as they were asked to do.

Mr. WILSON. Yes. I don't think that the government programs have necessarily been as successful as people had hoped.

Mrs. BIGGERT. Thank you, I yield back.

Chairman MOORE OF KANSAS. Thank you, Mr. Puvalowski, for showing your office's audit. What was the most troubling finding in your report? And if Treasury made only one change to improve the TARP warrants program what would that be, sir?

Mr. PUVALOWSKI. It would be the development of guidelines or criteria to put some framework around how the negotiation process is conducted. SIGTARP's audit identified very significant differences in how different banks were dealt with during the negotiation process, particularly with respect to how much information was provided to the institutions about Treasury's estimated value. Obviously, the negotiation process is a dynamic thing that requires some flexibility, but without some form of guideline or criteria, there is a real danger of arbitrariness of different banks being treated differently, of frankly just having one person, whether it is the analyst or assistant secretary or someone else at Treasury having a very significant discretion in terms of decisions that make the difference of tens of billions of dollars of taxpayer return.

When a Wall Street bank goes out and decides to do a bare-knuckled negotiation with a counterparty with one kind of party and a more accommodating approach with another counterparty that is business, that is what business is all about. Treasury is not a Wall Street bank. And when Treasury is administering a government program, it is fundamental to accountability, to transparency that there be some ground rules to make sure that banks are being treated the same.

Chairman MOORE OF KANSAS. Thank you, sir. Mr. Atkins, or other witnesses, what key change should Treasury focus on with respect to TARP warrants?

Mr. ATKINS. I would have to echo what Mr. Puvalowski has said. I think the potential allegations of favoritism or other things that might come up by disparate treatment of institutions need to be headed off before they happen. Obviously, there is a lot of cynicism in the public, and more openness and more documentation to be able to replicate the determinations as necessary.

Chairman MOORE OF KANSAS. Mr. Jarrow and Mr. Wilson, do either of you have any comments?

Mr. JARROW. I would just echo that transparency is a good. And I think the Treasury, at least from my perspective, has been very

accommodating in regard to that, so I expect that they will continue to do so in the future.

Chairman MOORE OF KANSAS. Mr. Wilson?

Mr. WILSON. I think the SIGTARP report reveals very interesting details about how different banks were treated in different ways. And the way that Treasury communicated its minimum prices to different banks, and not all banks were treated the same. So American Express was not told anything and we got the highest price that I have estimated as a percent of fair market value. Treasury thought that was a very high price too.

In contrast with Morgan Stanley, there was supposedly, according to the Morgan Stanley executive, there was a lot of communication about the minimum price they were willing to accept, and taxpayers lost between $375 million and $450,0000, whether you take my estimate at the time or my estimate after looking at the auction warrants. One of the things that we found from the auction warrants is that in-the-money warrants trade for a lot more than out-of-the-money warrants. And this is well-known in option markets; it is called the volatility smile. The volatility smile is working in the favor of the Treasury with American Express, Goldman Sachs, Morgan Stanley, but Morgan Stanley paid less than the implied volatility short-term options or at-the-money option, but Goldman Sachs and Morgan Stanley paid significantly higher implied volatilities.

Chairman MOORE OF KANSAS. The Chair would next recognize Mrs. Biggert if you have questions for up to 5 minutes.

Mrs. BIGGERT. Yes, thank you, Mr. Chairman.

Mr. Puvalowski, when we were talking about how there is the auction and the negotiation, is there a third way to do this and with the third party valuations, or is that folded into the other two?

Mr. PUVALOWSKI. Part of Treasury's process is a series of steps, and the first is the negotiation process. The bank essentially gives its first offer, Treasury will assess that offer, and reject or accept it. If it is rejected, the bank has an opportunity to provide additional offers, sometimes there are multiple offers that are provided.

If a price cannot be determined through that process, the parties do have the option of entering into an appraisal process where essentially each side would pick an appraiser, they would try to agree, if they couldn't agree a third appraiser would be selected. So there is a kind of intermediate step. The appraisal process has not been invoked in any case thus far. The banks would have to incur the cost of the appraisal, which is one of the reasons that has been identified, that the appraisal process hasn't happened thus far. So there is an intermediate step that is built into the process, but it has not yet been used.

Mrs. BIGGERT. Thank you. You know the regulatory reform bill said in the Senate right now and soon to be the House again, I suppose the bills allow for a permanent government intervention into "too-big-to-fail" for any financial institution or business deemed a problem to the Federal regulators. Is there a moral hazard in making these programs permanent if the financial institutions, or any business thinks that if they make poor decisions, then the government will simply take over and taxpayers will pick up the tab, does

this give businesses more or less the green light to engage in risky activities? This is a question for anybody who wants to answer.

Mr. ATKINS. Well, I can take a stab at that. I think there are certain aspects to that Senate bill as it is moving on the Floor that raise a lot of the concerns that you have mentioned, particularly the flexibility that is still within the government to determine who is systemically significant and make those determinations sort of a star chamber type of group that would make that determination, there is an appeal process and things like that. But I am not sure how that is going to work in practice and it is quite concerning, I think.

Mrs. BIGGERT. Anybody else? Okay.

Then Mr. Jarrow, in your testimony, you state that you believe that Treasury warrant repurchase program has been a success. In the interest of full disclosure, were you compensated for your warrant valuation consulting services to the Treasury?

Mr. JARROW. Yes, I was.

Mrs. BIGGERT. Then having served as a consultant to the Treasury last year regarding the valuation of the TARP warrants, can you comment on SIGTARP's recent audit finding regarding the lack of documentation or internal controls? For example, how did we know that the Goldman warrant repurchases were the best deal for the taxpayer?

Mr. JARROW. I can't really comment on the transparency of the negotiation because that isn't what I was really looking at. I was looking at the process for the valuation and whether or not the internal models were good. And I found, and I concluded that the process itself was fair and the internal models were good.

One way you could check to see whether or not the resulting sale was fair is to get market quotes before the fact and compare them to the ultimate sale, to have an internal model and to see whether or not the estimates that come out of the model are close to the sale. And on those latter criteria, I judge that to be quite good and therefore a success.

Mrs. BIGGERT. Thank you. Let's see, I have a minute here.

Professor Wilson, you said in your testimony that we should be contracting State ownership of the banking sector, not expanding it, and I couldn't agree more. Recently revised small business lending fund leaves open the possibility that Congress could still fund the program through TARP. What harm to the taxpayers could come from implementing this program?

Mr. WILSON. Right now, we have made investments in over 700 banks and other institutions. Most of those are preferred stock or subordinated debt. The subordinated debt lasts 30 years, preferred stock you never have to pay that back. So that the taxpayers to exit the TARP will eventually have to sell that or convince those institutions to pay that back. I believe that the institutions that have paid back early were most likely the ones to paid back early, they are also the most healthy institutions.

There are many institutions that have received preferred stock or subordinated debt that are not paying dividends or interest if it is subordinated debt. And last count, it was 82. Three of those have been restructured in bankruptcy and there may be more in the future. But it would be very hard to exit these preferred stock injec-

tions if we don't convince the banks to do that. And I think the adverse selection problem will be even worse if we are offering a 1 percent dividend to banks that have not participated in the Capital Purchase Program because we have really exhausted all the banks that are really willing to participate and only really desperate institutions would want to enter into government ownership.

Mrs. BIGGERT. Thank you. Thank you, Mr. Chairman. I yield back.

Chairman MOORE OF KANSAS. Thanks again to the ranking member. And again, I want to thank all of our witnesses for your testimony here today. Today's hearing was helpful in getting an update on where things stand for the United States taxpayers with respect for TARP and warrant repurchases. While it is good to celebrate the success of the TARP Warrants Program, this subcommittee will not and should not rest easy. We must keep pushing for greater transparency and accountability while maximizing return for taxpayers.

I ask unanimous consent that the following reports be entered into the record: Exhibit 1, the Treasury Department's January TARP Warrant Disposition Report; and Exhibit 2, a CRS report, "Government Interventions in Response to Financial Turmoil." Without objection, those 2 reports will be made a part of the record.

The Chair notes that some members, whether they are here or not, may have additional questions for our witnesses which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to these witnesses and to place their responses in the record. This hearing is adjourned, and again, I thank very much the witnesses who attended today to give their testimony.

[Whereupon, at 12:21 p.m., the hearing was adjourned.]

A P P E N D I X

May 11, 2010

Opening Statement from Chairman Dennis Moore (KS-03)
House Financial Services Oversight and Investigations Subcommittee
"TARP Oversight: An Update on Warrant Repurchases and Benefits to Taxpayers"
May 11, 2010

Leading up to our first TARP oversight hearing focused on the issues of warrant repurchases last July, there were a number of concerns raised that taxpayers were not seeing maximum returns on their investment. I wrote a letter to Secretary Geithner last June expressing that I was concerned with "recent reports that financial institutions that have received TARP funds are lobbying to buy back warrants the U.S. government received for providing taxpayer assistance at a reduced or minimal value. I strongly urge you to utilize your authority to maximize the best deal for taxpayers."

I copied on that letter our TARP oversight entities, including the Congressional Oversight Panel and SIGTARP. Within a few days, I received a response from both that they would investigate further. Before our July hearing, COP reported that at that time, taxpayers were receiving only 66 percent of warrants value compared to their best estimate of their worth.

With the mounting pressure from Members of Congress, the TARP oversight bodies and the general public, I was pleased to learn the morning of our July hearing that Goldman Sachs announced they would buy back their warrants for $1.1 billion. That represents a 23 percent annualized return taxpayers received on the original $10 billion investment in the firm. At the hearing, I said: "That sounds pretty good, but is it good enough?" Since that time, other large transactions include Morgan Stanley agreeing to pay $950 million to repurchase their warrants; JPMorgan Chase auctioned their warrants for $950.3 million; and Bank of America auctioned their warrants for more than $1.5 billion.

To answer my question from the July hearing – are these returns enough? – I will read from the written testimony of our witnesses today. Professor Linus Wilson says "oversight works". Mr. Atkins for the Congressional Oversight Panel says: "The Panel has been pleased to see that Treasury's performance in this area has improved dramatically since we first analyzed its initial warrant dispositions." Professor Robert Jarrow remarks: "It is my belief that the Treasury's warrant repurchase program has been a success." In SIGTARP's audit that we will discuss today, they write: "To its credit, Treasury has generally succeeded in negotiating prices from recipients for the warrants at or above its estimated composite value." (*emphasis added*)

I will note that to the benefit of taxpayers, SIGTARP and COP rarely, if ever, hold back on being critical of various TARP programs and financial stability efforts, so those comments tell me that the program is working pretty well.

We should not lose sight of the forest for the trees, and before we focus on ways to improve this program, let me stress: the TARP warrants program has worked, and worked well providing over $6 billion of additional returns for taxpayers with billions more expected. And that's beyond the $181 billion of repayments of the initial TARP investment. If you add the $14 billion in total dividends, interest and distributions from TARP recipients to date, taxpayers have received an additional $20 billion on top of the normal repayments.

If Congress had enacted the Bush Administration's original three page proposal for TARP – essentially a $700 billion blank check with no oversight and no strings attached – taxpayers would not have these additional returns today and would be left with the tab.

But by authorizing the use of warrants, creating strong oversight entities like SIGTARP and COP which have produced thousands of pages of oversight reports that are available online, and adding a requirement that taxpayers must eventually be fully repaid, TARP will have done its job to both stabilize the economy and fully protect taxpayers.

And don't take my word for it. Consider what Professor David A. Walker from Georgetown University, a Republican witness at our O&I hearing last week said: "I believe that the TARP commitment was essential.... It is my opinion that our economy would be rebounding much more slowly than it has if we had not implemented the TARP program."

While the TARP warrants program has greatly benefited U.S. taxpayers, it is our duty to explore the program fully and ensure that it is as transparent and well run as possible. For example, I hope we explore policy questions looking at the differences between the public auction and direct negotiations with Treasury – is one option better than the other? How do we ensure there's consistency of outcomes over a subjective process in negotiating a fair value for the warrants? Also, how do TARP warrants work for smaller financial institutions compared to larger ones?

I look forward to hearing the testimony of all of our witnesses today as we continue working hard to provide tough oversight of TARP and to ensure taxpayers are fully protected.

COMMITTEE ON FINANCIAL SERVICES
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May 11, 2010

THE HONORABLE TIMOTHY F. GEITHNER
SECRETARY
U.S. DEPARTMENT OF THE TREASURY
1500 PENNSYLVANIA AVENUE
WASHINGTON, DC 20220-0002

Dear Secretary Geithner:

Today, the Subcommittee on Oversight and Investigations (O&I) I chair is holding a hearing entitled "*TARP Oversight: An Update on Warrant Repurchases and Benefits to Taxpayers*." We are pleased to have Mr. David Miller, Chief Investment Officer for Treasury's Office of Financial Stability, testify on the successes of the TARP warrants program, yielding over $6 billion in additional proceeds for taxpayers with billions more expected.

I want to commend you, Assistant Secretary Herb Allison, Mr. Miller and other Treasury personnel who worked hard to make the TARP warrants program a success for taxpayers. I expect that today's hearing will shed additional light on further improvements that can be made so that our shared goal – taxpayers continuing to see a high degree of success and maximum returns for the duration of the TARP warrants program – is fully realized.

With respect to the status of TARP's effectiveness more broadly, I was pleased to hear from a Republican witness we had – Professor David A. Walker from Georgetown University – at an O&I subcommittee hearing last week when he said: "I believe that the TARP commitment was essential.... It is surely true that some of the TARP funds will never be repaid, but I believe the cost, compared to the potential cost of a single failure of a very large bank, had to be accepted. It was a short-term, not a long-term solution. It is my opinion that our economy would be rebounding much more slowly than it has if we had not implemented the TARP program." (*emphasis added*)

I agree with Professor Walker, as I believe that while no legislator preferred to vote for TARP – including me – it was necessary to make sure the economy did not go from bad to much, much worse. Congress turned the original three page $700 billion proposal from the Bush Administration lacking strong taxpayer protections into a robust plan that authorized the use of warrants, created TARP-specific oversight entities such as the Special Inspector General for TARP (SIGTARP), and other features to fully protect taxpayers.

Turning to another important issue, I hope we can build on the successes of the TARP warrants program and see improvements in addressing the foreclosure crisis. While the worst of

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The Honorable Timothy F. Geithner
May 11, 2010
Page 2

the financial crisis has passed, just one foreclosure hurts the family living in that home as well as their neighbors who are able to keep up with their mortgage payments but who then see their neighborhood home values decline. We must do all we can to address this ongoing challenge.

In their recent audits and reports to Congress, SIGTARP and the Congressional Oversight Panel made helpful observations and recommendations to improve the Home Affordable Modification Program (HAMP) and other foreclosure mitigation efforts. I am pleased that Treasury has taken some of those recommendations into consideration with the most recent changes announced to the program, but I ask that Treasury redouble its efforts, under your leadership, in strengthening foreclosure mitigation efforts. If there are ways that Congress can support these efforts, or if there is anything I can do, please let me know.

Thank you, again, for your hard work and the work of all the dedicated public servants at Treasury in the past year and a half to stabilize our financial system, fully protect taxpayers and come to the aid of struggling homeowners in a fair and balanced manner. I look forward to continuing to work with you. Please let me know if there is anything I can do to be of assistance to you.

Very truly yours,

DENNIS MOORE
Member of Congress

Thank you!

DM: gs

Testimony of Paul Atkins
Member, Congressional Oversight Panel
before the
House Financial Services Committee
Subcommittee on Oversight and Investigations
May 11, 2010

Chairman Moore, Ranking Member Biggert, and distinguished members of the Subcommittee: I am Paul Atkins, a member of the Congressional Oversight Panel. I appreciate this opportunity to testify about the Congressional Oversight Panel's work assessing the performance of the Treasury Department in managing and disposing of the stock warrants it has acquired in conjunction with the Troubled Asset Relief Program (TARP). I should note that the views expressed in this testimony are my own. I will do my best to convey the Panel's views, but my statements cannot always reflect the opinions of our five diverse thinkers.

The Panel is charged by statute to "review the current state of the financial markets and the financial regulatory system" and provide monthly reports to Congress assessing the effectiveness of the Treasury's implementation of the TARP, including its disposition of stock warrants. When Congress authorized the commitment of $700 billion to rescue the financial system through the Emergency Economic Stabilization Act of 2008 (EESA), it also required that taxpayers participate in the upside if assisted financial institutions returned to profitability. This is achieved through Treasury's receipt of warrants to purchase common stock or other securities from the banks party to any transaction in which financial institutions receive TARP capital.

The Congressional Oversight Panel performed an in-depth analysis of Treasury's management of TARP warrants in its July 2009 report. Treasury acquired most of its warrants in conjunction with the major TARP financial rescue initiative, the Capital Purchase Program (CPP), under which it invested $205 billion in 707 financial institutions. These warrants represented 15 percent of the value of the Treasury investment under the CPP. Additionally, Treasury received warrants from Bank of America and Citigroup due to the capital infusion from the Targeted Investment Program (TIP). Treasury's 150 million TIP-related warrants in Bank of America

were auctioned in March of this year, while the 188 million TIP-related Citigroup warrants remain within Treasury's TARP holdings

In May 2009, CPP-assisted banks began to repay their TARP assistance. Once an institution has repaid its TARP assistance by redeeming the CPP preferred shares held by the Treasury, the institution may elect to negotiate the repurchase of its warrants as well by submitting a bid within 15 days of repayment. If the Treasury and the bank are unable to agree on the terms of a warrant repurchase transaction or the bank does not elect to bid on their repurchase, Treasury may sell the warrants through a public auction. At the time of the Panel's July Report, 11 smaller banks with an average TARP investment of $75 million had redeemed their CPP preferred shares and successfully repurchased their warrants from Treasury.

The Panel evaluated the prices that Treasury negotiated for these 11 banks to repurchase their warrants. We used the industry standard Black-Scholes option pricing model adjusted to reflect the particular characteristics of the warrants that Treasury received under the CPP, specifically the dividend yield and 10-year duration. The Panel's analysis concluded that the Treasury had received approximately 66 percent of our best estimate of the value of the TARP warrants for these banks. However we acknowledged as well that these repurchases represented less than one quarter of one percent of our best estimate of the value of all the CPP warrants that Treasury had acquired as of that time. We also noted that Treasury's own valuation of the warrants of these smaller institutions incorporated an adjustment for the likely relative illiquidity of the stock of these banks, a step that the Panel did not apply because of the subjectivity of this factor.

The Panel's analysis included estimates of a low, most likely and highest reasonable valuation for each bank's warrants. Volatility is a significant input to option, and thus warrant, pricing, and the volatility swings of recent years can produce wide-ranging estimates.

The Panel's July report noted that warrant repurchases can occur only after Treasury has agreed to allow a CPP recipient bank to repay its TARP assistance. Maximizing the government's return on its TARP investment, of which the disposition strategy for the warrants is an important

element, must necessarily be tempered by the public policy goal of assuring the health of the banks that have received TARP assistance.

The report also recommended that Treasury give serious consideration to employing auctions to dispose of warrants rather than relying heavily upon one-on-one negotiations with the individual banks. Using a public auction for warrant repurchases would leave no room for speculation that Treasury was too tough or too easy on a TARP-recipient institution while allowing banks to repurchase their warrants in competition with other market participants. The report noted the need for greater transparency in the Treasury warrant valuation and negotiation process and called for Treasury to publish periodic reports that provide details on the value determinations for warrants that have been sold.

Shortly after the Panel issued its July Report, a number of larger banks began to repay their TARP assistance and redeem their CPP shares. J.P. Morgan Chase announced it would end its negotiations with Treasury and allow their warrants to be sold at public auction. During the month of June, eight large banks, including Goldman Sachs and Morgan Stanley, repaid their TARP funds and repurchased their warrants in July and August. The amounts that Treasury received for the warrants increased dramatically at this point, with Goldman Sachs, for example, paying 98 percent of the Panel's best estimate of the value of their warrants at repayment date. Repayments of CPP investments and repurchases or auctions of TARP warrants have continued at a steady pace since that time. As of the end of last week, 70 institutions have completely repurchased their CPP preferred shares for an aggregate $137 billion. Of these institutions, 36 have repurchased their warrants for common shares that Treasury received in conjunction with its preferred stock investments, while Treasury has sold the warrants for common shares for nine other institutions at auction. The remaining 26 institutions are comprised of eight private banks whose warrants were immediately exercised for additional preferred shares and 17 institutions whose warrants have not been sold or repurchased, including Wells Fargo and Hartford Financial Services Group.

In total, Treasury has received $6.15 billion from the disposition of its TARP acquired warrants, $2.9 billion from negotiated repurchases and $3.2 billion from auctions. The total received

represents slightly more than 102 percent of our best estimate of the value of the warrants at the time they were sold or auctioned. Treasury's use of auctions to dispose of warrants has produced returns of 110 cents on the dollar to Panel valuations, compared to 93 cents on the dollar for repurchases. The Panel's best estimate of the value of the TARP warrants that Treasury continues to hold is currently $5.3 billion.

In addition to the warrants received under the Capital Purchase Program and the Targeted Investment Program, Treasury also received stock warrants in conjunction with the Auto Industry Financing Program. Warrants received as part of the initial assistance to GM and Chrysler were extinguished as part of the credit bid process in bankruptcy. As in the case of other private institutions, the warrants Treasury received in relation to GMAC for a variety of preferred securities were immediately exercised on the investment date.

Conclusion

The requirement that the government receive stock warrants as part of its compensation for the provision of financial assistance during the recent financial crisis allowed American taxpayers to participate in the financial upside experienced by TARP-recipient institutions. As these banks returned to profitability, the public received an additional return on their investment. The Panel has been pleased to see that Treasury's performance in this area has improved dramatically since we first analyzed its initial warrant dispositions. The use of public auctions has clearly allowed for taxpayers to receive a solid return on their investments in these institutions and the transparency provided by public auctions allows the transactions to take place in full public view. Treasury has worked to improve its transparency in this program but more remains to be done in this regard. The Panel has urged the Department to continue publishing the details of its internal valuations for each warrant disposition transaction, as it did most recently in January of this year. The Panel also has urged Treasury to provide more assurance that it is achieving consistency in the negotiated warrant sale price process. The issues of transparency and consistency of outcomes will become even more important as Treasury moves to dispose of the warrants for the many remaining TARP-assisted small banks whose stocks are thinly traded. Taxpayers expect – and deserve – no less for the integrity of the process.

I appreciate the opportunity to share my views. I would be pleased to provide more details on the Panel's assessment of Treasury's warrant disposition efforts or to answer any questions. Thank you.

Testimony on "TARP Oversight: An Update on Warrant Repurchases and Benefits to Taxpayers"

House Committee on Financial Services
(Subcommittee on Oversight and Investigations)

May 11, 2010

Robert A. Jarrow

I would first like to thank the members of the committee for the invitation to testify today. My name is Robert Jarrow. I am the Ronald P. and Susan E. Lynch Professor of Investment Management at the Johnson Graduate School of Management, Cornell University. I am an expert on risk management modeling and implementation. I wrote the first published textbook on option valuation over 25 years ago[1], and since that time I have continued to do research and to publish in this evolving discipline. My models are currently used by the financial industry to value and to hedge both interest rate and credit derivatives.[2] I have extensive consulting experience implementing derivative models in practice, and I currently serve on the board of directors for a risk management software and consulting firm (Kamakura Corporation).

As additional background relevant to my testimony, I was engaged as an independent contractor by the U.S. Treasury for one month in the summer of 2009 to audit their warrant valuation procedure. A summary of my evaluation is available on the Treasury website (http://www.financialstability.gov/latest/reportsanddocs.html).

It is my belief that the Treasury's warrant repurchase program has been a success. It has generated repurchases that are fair to both U.S. citizens and to the banks in the TARP program.

The Treasury warrants repurchase process is well constructed, containing two components: a negotiated repurchase with an embedded appraisal procedure if

[1] R. Jarrow and A. Rudd, 1983, *Option Pricing*, Richard D. Irwin, Inc.
[2] This statement relates to the Heath, Jarrow, Morton model for interest rate derivatives and the Jarrow-Turnbull reduced form model for credit derivatives.

disagreement occurs and/or an auction sale to third parties[3]. To date, most repurchases have occurred through negotiation[4]. In the negotiation process, the Treasury determines a fair price for warrant repurchase using the judgment of the Treasury's internal experts in conjunction with three different price estimates: (1) quotes from market participants, (2) third-party valuations, and (3) an internal model. The Treasury's internal valuation model is based on best industry practice and the highest academic standards.

Early in the warrant repurchase program (summer 2009), criticism of the Treasury's fair valuations appeared in the financial press[5] and in the July 2009 Congressional Oversight Panel Report (TARP Repayments, Including the Repurchase of Stock Warrants, July 10, 2009). This criticism was unjustified because it was based on price estimates obtained from poor model implementations. Since that time, the Treasury's valuations have converged to those of their critics. This convergence was due to changing market conditions. It was not due to any modification of the Treasury's methodology, except for the reduced use of a liquidity discount. I now explain why these statements are true.

As is well known, the TARP warrants are American-type[6] call options on the bank's common stock with a fixed strike price[7] and a 10-year maturity date. A call option is a financial contract that gives its owner the right (but not the obligation) to purchase the common stock by paying the strike price on or before the maturity date. A warrant and call option differ due to a dilution effect associated with the warrant. If exercised, the warrant receives newly issued shares. With a call option, the shares come from the secondary market.

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[3] This is a competitive, sealed bid, uniform price auction.

[4] See U.S. Treasury, Office of Financial Stability, Warrant Disposition Report.

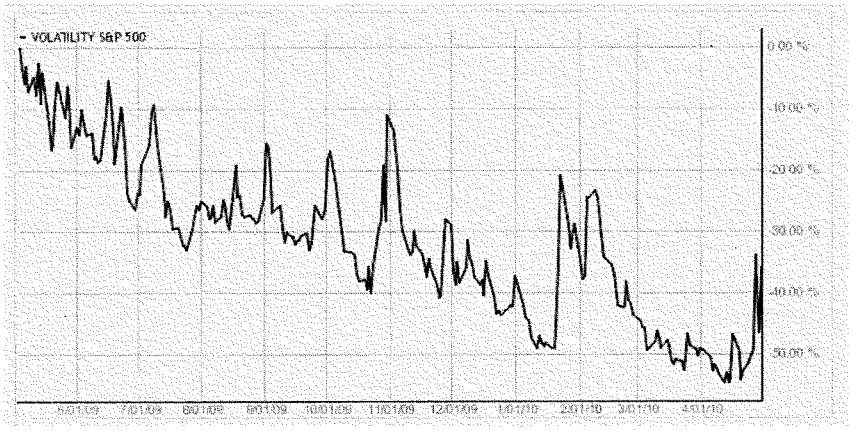
[5] USA Today, Morgan Stanley repurchases TARP warrants, August 8, 2009; Wall Street Journal, J.P. Morgan to send warrants to Market, July 13, 2009; Bloomberg.com, U.S. Treasury Fairly Valuing Warrants from TARP, Expert Says, October 22, 2009.

[6] The word *American* refers to the provision that the call option can be exercised any time from its date of issuance until expiration.

[7] The strike price is set equal to the 20-trading day historical average of the bank's common stock price as of the time it was given preliminary approval for a CPP investment.

Valuing these warrants is a complex exercise, involving the modeling of stock prices, stock price volatilities[8], dividends, and interest rates over the next 10 years. Industry best practice is to use a modified Black-Scholes model, which assumes very simple evolutions for stock prices, stock price volatilities, dividends, and interest rates. Under these simplifying assumptions, the model results in a value that depends critically on the stock price volatility used.

The correct volatility input should be a forecast of the average stock price volatility over the next 10 years. This is a very difficult quantity to estimate. The early criticism of the Treasury's valuation estimates was mostly based on disagreements concerning this input. The correct approach is the one used by the Treasury[9], not that of the critics. The Treasury used the 10-year average stock price volatility while the critics used shorter-term (up to 5 years) stock price volatility estimates.



Graph of the S&P 500 VIX Volatility Index from May 2009 to May 2010 (Source: CBOE)

[8] The *stock price volatility* is a measure of the speed at which stock prices change over a year. The larger the volatility, the larger is the speed of stock price changes.

[9] The correct input is an average volatility based on the 10-year forward stock price volatility curve that is generated using both short-term implied volatilities and 10-year historical volatilities.

Since the early warrant repurchases in the summer of 2009, the stock market's volatility has declined. This is shown in the preceding graph of the S&P 500 VIX volatility index from April 2008 to April 2010. The VIX measures the 1-month volatility of the S&P 500 Index.[10] The decline in this short-term stock price volatility caused the differences between the stock price volatility inputs of the critics and the Treasury to narrow, resulting in more similar warrant valuations.

As typical of most option-pricing techniques, the Black-Scholes model also assumes that markets are frictionless with no transaction costs and with infinite market liquidity. Obviously, these assumptions are not satisfied for large sales of non-traded warrants. In this case, a liquidity discount is appropriate.[11] In the early repurchase of TARP warrants, the Treasury applied such a liquidity discount. As market conditions stabilized, liquidity discounts were less necessary in subsequent repurchases of warrants. The critics' valuation estimates never included such a liquidity discount.[12]

It has been argued that the Treasury's warrant repurchase process should be changed either to: (1) use a model for fair value without modifications from internal Treasury experts, or (2) use only market auctions and not negotiated sales. I disagree with both of these suggestions.

First, using only an internal model without Treasury's internal judgment is inappropriate. As shown by the preceding discussion, models are only approximations of a complex market reality. Therefore, models are always in error. Judgment is needed to make adjustments for the model's errors. A black-box approach to valuation based on the blind use of an internal model has the potential to generate significant losses. An illustrative example of this was the black-box usage of models for valuing Collateralized Default

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[10] "The CBOE Volatility Index – VIX," Chicago Board Options Exchange, 2009.

[11] The key papers analyzing the impact of liquidity on option valuation are U. Cetin, R. Jarrow and P. Protter, 2004, "Liquidity Risk and Arbitrage Pricing Theory," *Finance and Stochastics*, 8, 311 – 341 and U. Cetin, R. Jarrow, P. Protter and M. Warachka, 2006, "Pricing Options in an Extended Black Scholes Economy with Illiquidity: Theory and Empirical Evidence," *Review of Financial Studies*, 19 (2), 493 -529.

[12] The liquidity discounts applied in the initial warrant repurchases also explain some of the price differences in the early criticism of warrant repurchases. The magnitude of the liquidity discount incurred in the auctioned warrants is an interesting and still unanswered question.

Obligations (CDOs) by the investment industry before the recent credit crisis.[13] This black-box usage contributed to the billions of dollars of losses incurred by the investment industry.

Second, selling warrants using only a market auction process has two disadvantages relative to a negotiated trade. One, there are additional third-party costs paid to the investment bank acting as the auction agent that are lost to both the TARP bank and the Treasury. Two, depending upon market demand, there is the potential for a larger liquidity discount in an auction sale than that incurred through direct buyer-seller negotiation. If done properly, a negotiated sale reduces these two costs of an auctioned repurchase. When negotiations fail because of disagreement on fair value, then the auction process is a useful alternative.[14]

In summary, the Treasury's warrant repurchase program has been successful precisely because its fair value determination included judgment by Treasury's internal experts as well as an internal model, third-party model valuations, and market quotes. Furthermore, the availability of a multiple-alternatives approach (negotiation or auction) for the ultimate sale of the warrants enabled disagreements to be reasonably resolved.

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[13] M. Crouhy, R. Jarrow and S. Turnbull, 2008, "The Subprime Credit Crisis of 2007," *Journal of Derivatives*, Fall, 81 – 110.

[14] Although there is an appraisal process for disputes in a negotiated repurchase, it has never been invoked. See U.S. Treasury, Office of Financial Stability, Warrant Disposition Report.

TARP Warrants Valuation Methods

Robert A. Jarrow

September 22, 2009

Background and Summary

I was engaged as a contractor by the U. S. Treasury from July 15, 2009 to August 15, 2009 to assess the U.S. Treasury's TARP warrants valuation methodology. This document details my understanding of the Treasury's approach for valuing TARP warrants, gained from direct dialogue with Treasury staff members.

Under the Capital Purchase Program ("CPP"), the U.S. Department of the Treasury ("Treasury") received warrants in connection with each of its preferred stock investments in a Qualified Financial Institution ("QFI"). For investments in publicly traded institutions, Treasury received warrants to purchase common shares.[1] When a publicly-traded QFI repays Treasury's CPP preferred stock investment, the QFI is contractually entitled to repurchase the CPP warrants at fair market value.

The Treasury uses a number of different valuation approaches to help estimate fair market value. These approaches include indicative valuations from market participants, independent valuations from external asset managers, and modeled valuations using methodologies further described in this paper. The range of values provided in these approaches is analyzed by the Treasury to determine the adequacy of a QFI's assessments of fair market value.

Overview Warrant Repurchase Process under the CPP Contract

The warrant repurchase process is a multi-step procedure, starting with a QFI who wishes to repurchase the warrants submitting a determination of fair market value to Treasury. The Treasury can accept the fair market value or not. If the Treasury and the QFI cannot reach an agreement, either party may invoke an appraisal procedure. In this appraisal procedure, the bank and Treasury select independent appraisers. If these appraisers fail to agree, a third appraiser is hired, and subject to some limitations, a composite valuation of the three appraisals is used to establish the fair market value. If Treasury and the QFI cannot reach agreement regarding fair market value and neither party invokes the appraisal procedure, the Treasury intends to sell the warrants through an auction.

The Treasury has developed a robust set of procedures for evaluating initial QFI determinations based on three inputs: market prices (where available) and quotes from various market participants, financial models, and outside consultants/financial agents. The details of this repurchase process can be found at http://www.financialstability.gov/docs/CPP/Warrant-Statement.pdf.

Financial Modeling

The U.S. Treasury performs an in-depth model valuation as input to its assessment of a warrant's fair market value. The remainder of this report provides an in-depth description of the Treasury's valuation model.

To value its warrants, the Treasury uses a modified Black-Scholes model. For computations, the Treasury employs a binomial approximation to the Black-Scholes model. It is well known that the binomial model

[1] In the case of institutions that are not publicly-traded, Treasury received warrants to purchase preferred stock or debt and these warrants were exercised immediately upon closing the initial investment. As such, these warrants are no longer outstanding.

converges to the Black-Scholes model as the number of "steps" in the binomial's tree approaches infinity. The Black-Scholes model and its binomial approximation are well-accepted methods for pricing options by both academics and market participants (see Cox and Rubinstein [1985], Hull [2007], Jarrow and Turnbull [2000]).

An unadjusted (or not modified) Black-Scholes model for pricing equity options is based on the following simplifying assumptions: (1) no dividends, (2) constant interest rates, (3) the underlying stock's volatility is constant across time, and (4) frictionless markets (liquid markets and no funding costs). The U.S. Treasury uses a modified Black-Scholes model to incorporate the relaxation of these simplifying assumptions. The modifications employed are discussed below.

In addition, the unadjusted Black-Scholes model is formulated to price equity options and not warrants. Warrants differ from equity options in that when warrants are exercised, to fulfill the conditions of the warrant contract, the bank issues new shares. This is not the case with equity options. The U.S. Treasury's valuation method explicitly recognizes this distinction. This potential dilution effect of warrants is also discussed below.

The Standard Inputs

The standard inputs to the modified Black-Scholes warrant valuation model include the maturity date of the warrant, the warrant's strike price and the underlying stock price. The warrant's maturity date and strike price are as given in the CPP contract. For the current stock price, the Treasury uses a 20-day moving average of past stock prices to smooth any aberrations in the stock's price movements. However, the current stock price is also considered to include any recent shifts that may impact valuation.

The Modifications

1. Dividends

Unlike common stock, warrants are not entitled to dividend payments, and thus dividends reduce the value of the warrant by eroding the value of the underlying shares. The modified Black-Scholes model includes this dividend erosion by assuming that the underlying stock pays a constant dividend yield.

To estimate the dividend yield the Treasury analyzes the company's dividend payment history and investigates the company's implied or explicit dividend policies. The Treasury also examines recent dividend actions or market activity that may have changed dividend yields significantly. The effect of these changes is estimated and incorporated into the average dividend yield.

It is well known that with dividends, an American call option's value may differ from an otherwise identical European call option's value. This value difference is due to the possibility of early exercise. The TARP warrants can be exercised early; hence, they are American-type warrants. Early exercise is explicitly included within the binomial approximation procedure when valuing TARP warrants.

Justification

For a common stock, over a ten-year horizon, dividends will be stochastic and discrete. The Treasury approximates these discrete and stochastic dividend payments using a constant dividend yield. Since the underlying stock price is stochastic, a constant dividend yield implies that the total dividends paid over any quarter are stochastic. Hence, a constant dividend yield approximation incorporates the stochastic nature of these discrete dividend payments. This is a well-accepted approach to handling discrete and

stochastic dividends (see Jarrow and Turnbull [2000, p. 258]).

2. Stochastic interest rates

The Treasury uses as the interest rate input the yield on a Treasury bond that matches the maturity of the warrant. Because the warrants in the Treasury portfolio are 9 to 10-year dated, the Treasury finds the appropriate matched maturity yield by straight-line extrapolating between the 7-year and 10-year constant maturity Treasury bonds.

Justification

It is well known (see Amin and Jarrow [1992]) that to modify the Black-Scholes formula for stochastic interest rates, there are two necessary adjustments. First, the yield on a Treasury bond matching the warrant's maturity should be used as the input to the Black Scholes formula. The Treasury incorporates this first adjustment. Second, when using historical volatility estimates, the volatility input should be adjusted to reflect the increased randomness due to the interest rate volatility and its correlation to the stock's return. This adjustment to the historic volatility is typically small and can often be excluded. However, when using implied volatilities, this second adjustment is unnecessary (see Jarrow and Wiggins [1989]). Because the Treasury uses an implied volatility estimation procedure whenever implied volatilities are available, the second adjustment is not used in the Treasury's valuation method.

3. Stochastic Volatility

There are two methods for estimating volatility: implied and historical. Without modification, both methods have limitations when estimating long-dated warrants with stochastic volatility. The Treasury uses a modified procedure involving both methods (where available) to construct a 10-year forward volatility curve. A forward volatility curve captures the stochastic nature of volatility. An "average" of the forward volatilities across this 10-year curve comprises the input to the modified Black-Scholes formula. Importantly, the Treasury also considers warrant values for a range of volatilities around this "average" forward volatility input.

For large financial institutions with liquid public equity and long-term options, the detailed procedure is as follows. The Treasury uses both observable implied volatility and historical volatility to construct a 10-year forward volatility curve. The initial segment of the curve consists of the observed implied volatilities for traded options. The last segment of the curve consists of a "normalized" 10-year average historical volatility. The volatility is normalized by removing any abnormally high recent volatilities from the estimate. The middle segment is determined using straight-line interpolation between the initial and terminal segments. The estimated forward volatility curve is typically downward-sloping, consistent with a reversion in volatilities to a long-run value.

Justification

It is well known (see Eisenberg and Jarrow [1994], Fouque, Papanicolaou and Sircar [2000]) that when volatilities are stochastic, a call option's value can be written as a weighted average of (constant volatility) Black-Scholes values (each with a different volatility input). The weights in this average correspond to the martingale probabilities of the different volatility inputs being realized. The volatility inputs are the average of the 10-year realized volatilities, i.e.

$$volatility_input = \sqrt{\frac{\int_0^T \sigma_s ds}{T}}$$

where time 0 is today, time T is the maturity of the option (10 years), and σ_s is a possible realization of the random volatility at a future time s.

As discussed previously, the Treasury provides a range of Black-Scholes for various volatility inputs around the average of the 10-year forward volatility curve. These inputs can be interpreted as various possible averages of the future realized volatilities. The midpoint of this range is, therefore, an estimate for the option's value under a stochastic volatility model.[2]

3. Market Imperfections

The Treasury considers a number of market imperfections that could potentially cause the fair market value of a warrant to deviate from the model value (such as illiquidity of the warrant instrument or the bank's underlying equity). Judgment is used on a case-by-case basis to determine which adjustments, if any, for these market imperfections are appropriate.

Justification

Directly capturing market imperfections - market illiquidity and funding costs - in an option model is difficult (see Jarrow and Protter [2008], Broadie, Cvitanic and Soner [1998], Naik and Uppal [1994], and Cuoco and Liu [2000]). Each of these market imperfections can be considered as a type of transaction cost. It is well known that transaction costs make a market incomplete. In an incomplete market, there is a range of arbitrage free prices determined by the buying price (highest part of range) and a selling price (lowest part of range). The standard Black-Scholes value (without market imperfections) can be shown to lie between these two prices.

The buying and selling prices are determined by a trader's cost of replicating the identical cash flows to the warrant synthetically (for a long position and for a short position), including all market imperfections, via delta hedging. Note that with these market imperfections, there will be a buying premium and a selling discount reflecting the additional costs of obtaining the required cash flows.

Specific considerations with respect to market illiquidity and funding costs follow.

a. Illiquidity

The level of the stock price input into the Black-Scholes value captures the general impact of a depressed and/or illiquid market - making the warrants less valuable. This is distinct, however, from market liquidity considered as an endogenous transaction cost, i.e. a quantity impact on the price. A quantity impact on the price captures the notion that if you buy many warrants in an illiquid market, you need to pay more per share than if you buy only a single unit. Similarly, if you sell many warrants in an illiquid market, you will receive less per share than if you sell only a single unit.

The quantity impact on the market price is market-wide, and not trader-specific. For quoted prices (options prices for one round lot) or transaction prices (actual trading volume) the liquidity impact of the trade is captured by using an implied volatility (see Jarrow and Wiggins [1989]).

For large market trades of warrants, this component has to be separately included (as a discount to the model price) after the model's value is determined based on the Black Scholes formula using implied

[2] Of course, the midpoint assumes that each estimate of the realized future volatility provided is equally likely under the martingale probabilities.

volatilities. The magnitude of the potential discount is difficult to estimate. It depends on the size of the warrant position and the liquidity of the equity underlying the warrants. To access the magnitude of the liquidity impact, one can compute the number of shares an investor would short to "delta-hedge" the warrant position and compare that number to the average daily trading volume of the stock. The number of days of daily trading volume needed to delta hedge the position, across different banks, provides information on the relative liquidity of the warrant market.

It is important to emphasize that the price to the buyer (the bank) will exceed the price to the seller (the Treasury). The bank would pay a liquidity premium in buying (i.e. analogous to the "ask" in a bid-ask spread). The Treasury would incur a liquidity discount in selling (i.e. analogous to the "bid" in a bid-ask spread). Since the buyer and seller are meeting in a negotiated transaction, the "fair market" price should be in between the two prices.[3]

b. Funding Costs

Each bank has its own unique funding costs. These costs are determined by its existing balance sheet and credit worthiness. These unique funding costs determine the bank's internal cost of constructing a warrants cash flows synthetically (trading in the stock and borrowing/lending) via delta hedging.

In contrast, the fair market value is determined by the "marginal trader's" funding costs. The marginal trader is often not constrained, e.g. they can sell stock from inventory rather than shorting and incurring short sale fees. The marginal trader is the lowest cost transactor and their trades determine the fair market price. A market price that differs from the marginal trader's cost of construction - their buying/selling costs - will generate arbitrage opportunities for them. The marginal trader taking advantage of any such arbitrage opportunities will force the market price to reflect their funding costs.

There is significant empirical evidence that supports the claim that option models fit market prices well without explicitly including funding costs (see for example Pan [2002]). This supports the assertion that the fair market price is determined by marginal traders with small funding costs.

From the bank's perspective, if their funding costs are too high, for a long position, the bank would prefer to buy the warrants on the market rather than creating the same cash flows synthetically on their balance sheet via delta hedging. Similarly, for a short position, the bank would prefer selling the warrants in the market rather than holding the warrants on their balance sheet and shorting the warrants synthetically via delta hedging.

The Treasury's mandate is to obtain the "fair market" value of the warrants. Consequently, the marginal trader's funding costs are those that are relevant, not the bank's. Since the modified Black-Scholes model captures dividends, stochastic interest rates, and stochastic volatility, the only remaining considerations are market liquidity[4] and funding costs. If one uses the Black-Scholes model (as modified above) without market liquidity and funding costs, and (for a given future realized volatility) if one computes an option's implied volatility, then the implied volatility will incorporate both the historic volatility and the marginal trader's liquidity impact and funding costs (see Jarrow and Wiggins [1989]).

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[3] Note that the Black-Scholes value using implied volatilities is near the midpoint of the range determined by the buying premium and selling discount.

[4] The adjustment for market liquidity – a quantity adjustment on the price - is given by a scale adjustment after the model's value is computed using the implied volatilities which are based on typically small transaction volumes for the traded options.

For this reason, using the implicit volatility is key to including market liquidity and funding costs into the valuation procedure.

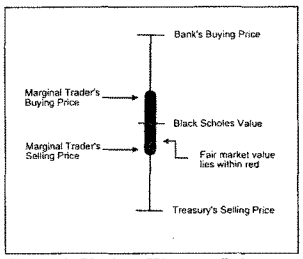

Figure 1: Various Warrant Prices

To understand the difference between the various prices, consider the following alternatives as reflected in Figure 1.

i. Bank's buying price: The bank can keep the warrants on its balance sheet, but borrow and trade in the underlying stock to remove the economic impact of the warrants. Note that the bank is short the warrants to the Treasury. Hence, it has to synthetically create a long position in the warrants via delta hedging, i.e. it has to buy the stock and borrow. When borrowing, the bank is incurring its higher funding costs (through a higher borrowing rate). It can be shown that the cost of synthetic construction - the bank's buying price - exceeds the Black Scholes value without the inclusion of these funding costs.[5]

ii. Marginal trader's buying price: The fair market price is determined by the marginal trader's funding cost for a long position in the warrant. The marginal trader's funding costs are less than those of the bank's (see Figure 1).

iii. Treasury's selling price: The Treasury has the analogous decision to the bank's. It can keep the warrants on its balance sheet and remove their economic risk by delta hedging. If the Treasury keeps the warrants on its balance sheet, it needs to sell the underlying stock and lend cash. The Treasury's funding costs are the relevant consideration here. The lending rate is the Treasury rate (zero funding cost). Although there are no funding costs, the Treasury's selling price would include short sales fees and the liquidity discount. Short sales fees and the liquidity discount make the selling price below the Black Scholes value without the inclusion of these costs (see Figure 1). It is important to note that the bank's selling price would be approximately the same as the

[5] Of course, the inclusion of liquidity costs in the bank's delta hedging will further increase the buying price due to the liquidity impact on the price.

Treasury's. The reason is that the bank's lending rate is the Treasury rate as well (zero funding cost). [6]

iv. Marginal trader's selling price: The fair market price is determined by the marginal trader's funding cost for a short position in the warrant. The marginal trader's funding costs are less than the bank's (see Figure 1).

v. Fair market price: The fair market price lies between the marginal trader's buying and selling prices. It is determined by market equilibrium considerations.

A negotiated transaction between the bank and Treasury has as the range for negotiation all prices between the bank's buying price and the Treasury's selling price. The Black-Scholes value without the inclusion of funding costs lies between these two. The fair market value is also between the two and determined by the marginal trader's funding costs. The Treasury's mandate is to obtain the "fair market" value of the warrants. Consequently, if Treasury's model were the only valuation mechanism is use, starting discussions regarding value with the modified Black-Scholes value as computed above would be appropriate.

Dilution from Warrant Exercise

Warrants differ from standard equity options in that the shares that a warrant holder receives, if exercised, are issued by the company and are not currently outstanding. As such, the exercise of the warrants triggers an issuance of shares by the company, and a potential dilution of existing shareholders' values. The Treasury makes no adjustment to the Black-Scholes value for this dilution effect, due to the fact that this dilution effect is rationally anticipated by market participants and already included in the current stock price input into the modified Black-Scholes formula.

Justification

There are two issues that arise due to warrant exercise resulting in the issuance of new shares. These are called sequential exercise and strategic exercise. Sequential exercise occurs when a large trader or monopolist owns most of the shares and they can create more value by exercising sequentially rather than as a block (see Constantinides [1984], Emanuel [1983], Spatt and Sterbenz [1988], and Linder and Trautmann [2009]). Strategic exercise occurs when a large trader or a group of small traders (acting independently via a Nash equilibrium) can create more value by exercising the shares only if the market price exceeds a value greater than the strike price (see Cox and Rubinstein [1985], p. 396, Galai and Schneller [1978], and Crouchy and Galai1[1994]). This is due to a potential transfer of wealth from shareholders to the liability holders due to dilution and an inflow of cash into the firm.

Since the Treasury is mandated to determine a fair market price, sequential exercise is not a relevant consideration because it only applies to a monopolist. Strategic exercise is a potential consideration, but to obtain a realistic representation of both the dilution and cash inflow effects, one must explicitly model

[6] There is no economic rationale for why the bank's high funding costs (higher borrowing rate) should be used as a justification for obtaining a lower selling price. The logic underlying using the bank's selling price is that the bank wants to buy back the warrants from the Treasury while simultaneously creating a short position in the warrants to finance the purchase (using the proceeds from the short position). This argument effectively retains the economic position of the outstanding warrants on the bank's balance sheet.

the liability structure of the bank. Given the complexity of a large financial institutions balance sheet (including off and on balance sheet items), this is an impossible task.[7]

An alternative approach, consistent with both theory and empirical evidence (see Schulz and Trautmann, [1994] is to assume that the market rationally anticipates the dilution and cash flow effects, and that these are embedded in the current stock price input into the modified Black-Scholes formula. Note also that the adjustment for stochastic volatility is consistent with this implementation. This is the approach that the Treasury adopts.

Warrant Contract Terms

The terms of the Treasury's warrants are specified in the Form of the Warrant documentation available on www.financialstability.gov. Certain of these terms can affect the warrant's value in a way not captured by an unadjusted Black-Scholes model. The Treasury considers each of these effects and includes them, when possible, in the valuation of the warrants.

Dividend protection. The warrant document (see http://www.financialstability.gov/docs/CPP/warrant.pdf) specifies protective adjustments to the terms of the warrants in the case that dividends in excess of certain levels are paid. This dividend protection would never decrease and would sometimes increase the value of the warrant. The exact effect on the value of the warrant depends on many factors including dividends at the time of funding, current dividends, and expected future dividend activity.

Business combinations. The warrant document also specifies certain adjustments to be made under certain business combinations. The effect of the terms is that some out-of-the-money warrants could become worthless (i.e. lose all their time value) if the underlying equity is purchased for cash by another company. Business combinations could also change the volatility of the underlying equity of a warrant.

Conclusion

As documented above, it is my belief that the Treasury's modeling methodology for valuing the warrants is consistent with industry best practice and the highest academic standards. The methodology uses the industry standard model for pricing options, the Black-Scholes model, in a modified form to account for the size of the warrant position, stochastic interest rates, stochastic volatility, as well as numerous market imperfections.

Furthermore, as previously detailed, the Treasury's financial model is only one component of a robust valuation procedure. For warrant positions that are evaluated, the Treasury also collects market prices (where available) or indications from market participants and valuations from outside consultants/financial agents. All valuation information is considered in the determination of an appropriate fair market value for the warrants of a specific institution.

The valuation process results in a warrant valuation that is fair to both the participating banks and the U.S. taxpayers.

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[7] Note that the existing academic literature only considers too simple and unrealistic capital structures.

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Written Testimony of David N. Miller
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House Financial Services Oversight & Investigations Subcommittee
May 11, 2010

Chairman Moore, Ranking Member Biggert and Members of the Subcommittee, thank you for the opportunity to testify before you today, regarding warrants received in connection with the Capital Purchase Program ("CPP") and the Targeted Investment Program ("TIP") established as part of the Troubled Asset Relief Program ("TARP") created under the Emergency Economic Stabilization Act of 2008 ("EESA").[1] The Office of Financial Stability ("OFS") pursuant to CPP and TIP has invested approximately $245 billion in over 700 financial institutions and has already seen significant progress towards the repayment of these taxpayer investments. EESA mandates that Treasury, with certain exceptions, receive warrants in connection with the purchase of such troubled assets.[2] Such warrants provide taxpayers with an additional potential return on the federal government's investments. I will focus my testimony today on TARP's warrant disposition process.

Overview

Treasury has received warrants in over 700 financial institutions for common stock, preferred stock, or senior debt instruments in connection with purchases of troubled assets across TARP programs. A warrant is a derivative instrument which provides its holder with the right to purchase a certain number of underlying securities (traditionally equity) from the issuer at a specified price within a definitive timeframe.[3] Taxpayers receive an additional return on TARP investments through the disposition of warrants. Treasury has devised and executed upon a comprehensive and transparent warrant disposition process.[4] As of May 5, 2010, Treasury had received approximately $6 billion in gross proceeds on the disposition of warrants in 44 financial institutions, consisting of (i) approximately $3 billion from repurchases by the issuers at agreed upon fair market values and (ii) approximately $3 billion from auctions.[5] For those 44 institutions, Treasury received an absolute return of 4% on its investment from

[1] While the testimony today will relate to the warrants received in connection with CPP and TIP, Treasury also holds warrants in conjunction with other TARP investments (i.e., American International Group ("AIG"), Legacy Securities Public-Private Investment Program ("S-PPIP"), Term Asset-Backed Loan Facility ("TALF"), Asset Guarantee Program ("AGP"), Automotive Industry Financing Program ("AIFP")).

[2] Section 113 (d)(1) of EESA provides that Treasury receive warrants or senior debt instruments in conjunction with a purchase of a troubled asset. However, the Secretary of the Treasury may establish a "de minimis" exception to the requirement to issue warrants in the case of an institution that receives less than $100 million in TARP funds. Treasury has exercised that authority by not requiring warrants in the case of investments in Community Development Financial Institutions ("CDFIs"), which are financial institutions that work in markets that are underserved by traditional financial institutions, in order to encourage their participation in CPP.

[3] When a holder exercises a warrant, the related company issues new shares which can have a dilutive effect to existing shareholders' value.

[4] Treasury released warrant valuation and disposition guidance and FAQs which Treasury posted to the OFS website on June 26, 2009 at the following link: http://www.financialstability.gov/roadtostability/capitalpurchaseprogram.html.

[5] The Comerica Incorporation warrant auction was held on 5/6/10 with an expected 5/12/10 closing and generated expected proceeds of $181 million which are excluded from this approximation.

dividends and an added 5% return from the sale of the warrants for a total absolute return of 9%.[6] These returns are not indicative of the entire TARP portfolio.

Background

Treasury invested in 707 Qualified Financial Institutions ("QFIs")[7] through CPP and 2 financial institutions through TIP, amounting to $245 billion in preferred stock and debt instruments.[8] Treasury created CPP in October 2008 to stabilize the financial system by providing capital to viable banks of all sizes nationwide and TIP in November 2008 to stabilize the financial system by making investments in institutions that are critical to the functioning of the financial system. QFIs have been repaying their CPP investments, and the only two participant institutions in TIP repaid their TIP investments at the end of 2009. Total TIP and CPP repayments are approximately $177.3 billion.[9] Treasury has been disposing of the related warrants accordingly. Therefore, I will speak primarily about the CPP and TIP warrant disposition processes.

EESA requires that Treasury receive warrants for common stock in connection with investments in publicly traded financial institutions.[10] Treasury has invested in 284 public institutions through CPP and TIP. Treasury has received warrants to purchase, at a fixed price, shares of common stock equal to fifteen percent of the aggregate liquidation preference in the case of CPP preferred stock in 282 public institutions and ten percent of the aggregate liquidation preference of the TIP preferred stock in 2 publicly traded financial institutions.[11] The per share exercise price was set at the 20-trading day trailing average of the financial institution's common stock price as of the time the respective financial institution was granted preliminary approval for the investment. These warrants are exercisable at any time over a ten year period from the date of issuance and include certain customary anti-dilution provisions for Treasury's protection.

EESA requires that Treasury receive warrants for common stock or preferred stock or debt in connection with investments in financial institutions that are not publicly traded. Treasury has invested in 425 privately-held companies, including banks, thrifts, Subchapter S Corporations, and mutual institutions through CPP. For 403 of these investments, Treasury received warrants to purchase, at a nominal cost, additional preferred stock or subordinated debentures equivalent to five percent of the aggregate liquidation preference of the primary CPP investment. These additional preferred stock and subordinated debt securities that were received from the exercise of the warrants pay a higher dividend or interest rate

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[6] Eight private financial institutions have repurchased the warrant preferred shares that Treasury exercised at the time of purchase.

[7] Treasury invested in 22 Community Development Financial Institutions ("CDFIs") which Treasury exempted from EESA's warrant requirement based upon the "de minimis" exception previously noted.

[8] Under TIP, Treasury purchased $20 billion in preferred stock from Citigroup Inc. and $20 billion in preferred stock from Bank of America Corporation. In July 2009, Treasury exchanged all of its TIP preferred stock in Citigroup Inc. for trust preferred securities. In December 2009, Bank of America Corporation and Citigroup repaid their TIP investments in full. Treasury continues to hold warrants acquired from Citigroup Inc. under the TIP. No further investments will be made under this program.

[9] Total TARP repayments are approximately $186.9 billion. OFS Office of Chief Financial Officer provided 5/6/10 repayment data which does not account for the ongoing Citigroup common stock disposition as of 5/6/10.

[10] Section 113 (d)(1) of EESA provides warrant requirements for Treasury investments in publicly traded and private financial institutions.

[11] Treasury auctioned the TIP Bank of America Corporation warrants on 3/3/10 and holds the Citigroup Inc. TIP warrants. Treasury's Office of Economic Policy and Office of Financial Stability provided analysis related to the Bank of America Corporation CPP and TIP warrant auctions in its March 18, 2010 report entitled *Treasury Analysis of Warrant Auction Results.*

than the primary CPP investment. Treasury immediately exercised all such warrants at the closings of the respective investments, resulting in Treasury's receiving an incremental amount of preferred stock and subordinated debenture holdings of approximately $217 million.

Redemptions

Institutions may redeem Treasury's investments under conditions established in the CPP securities purchase agreement and TIP securities purchase agreement as amended by the American Recovery and Reinvestment Act of 2009 ("ARRA").[12] The repayment price is equal to the investment amount plus any unpaid dividends or interest. Initially, the CPP securities purchase agreement provided that a financial institution could not redeem the investment within the first three years except with the proceeds of one or more "qualified equity offerings" ("QEOs"), which are offerings of securities that qualify as Tier 1 capital. The purpose of this provision was to help ensure that the participating financial institutions were adequately capitalized following the redemption of CPP preferred stock.

ARRA amended the repayment terms, permitting a financial institution to repay Treasury from any source of funds and without any waiting period subject to consultation with the institution's respective federal banking regulator. The terms of the CPP securities purchase agreement encourage QFIs to seek additional private capital. The CPP securities purchase agreement provides that a QFI which completes one or more QEOs with aggregate gross proceeds equivalent to the value of Treasury's CPP investment by December 31, 2009 may halve the number of shares subject to their warrants. Thirty-eight CPP participants completed QEOs by the deadline, sufficiently reducing the number of shares underlying their CPP warrants.

Disposition

The CPP securities purchase agreement further provides that once the preferred investment is redeemed or sold by Treasury, the financial institution has a right to purchase warrants then held by Treasury at the "fair market" value. If an issuer chooses not to repurchase its warrants according to its existing contractual rights, Treasury has the discretion to dispose of the warrants as it sees fit over time. Accordingly, Treasury has disposed of warrants through public auctions since December of 2009.

Robust and Transparent Process

Treasury has overseen a robust and transparent warrant disposition process which is applied uniformly regardless of the size of the financial institution. During the spring of 2009, Treasury developed and has adhered to extensive policies and procedures for warrant valuation and disposition through issuer repurchase and public auction. On June 26, 2009, OFS issued related guidance and FAQs on its website.[13] In these documents, Treasury outlined its comprehensive methodology for valuing warrants for issuer repurchases based upon market prices, financial modeling, and outside consultants/financial agents. Further, Treasury explained its rationale for choosing auctions to dispose of assets in the event an issuer did not repurchase the warrants, based upon a range of options, including holding warrants for a longer term or until expiration. Treasury concluded that there was no certainty that the other options

[12] Generally, the TIP securities purchase agreement contains similar redemption provisions as the CPP securities purchase agreement. However, the terms of the TIP preferred stock require that financial institutions participating in TIP redeem their CPP preferred securities prior to redeeming their TIP preferred shares.

[13] CPP memoranda are available on OFS' website at the following link: http://www.financialstability.gov/roadtostability/capitalpurchaseprogram.html.

would realize higher values. Further, Treasury explained that it would be inappropriate for the government to be exercising discretionary judgment on timing market sales. Accordingly, an auction would provide the optimal method for Treasury to realize the market value of the warrants in the near term for the benefit of the taxpayer.

Treasury has maintained a high degree of transparency throughout the warrant disposition process which has yielded positive results for the taxpayers. Treasury has published information on all CPP transactions, including investments, repayments, warrant repurchases and auctions in the TARP Transactions Reports, which Treasury publishes on the OFS website within two business days of a transaction's closing.[14] To bolster transparency with the warrant dispositions, Treasury announced on June 26, 2009 that it would publish additional information on each repurchased warrant, including the respective financial institution's initial and subsequent determination(s) of fair market value, if applicable. However, in order to avoid compromising its negotiating position, Treasury waited to publish this detail until it had accomplished two things. One was the successful completion of several repurchase transactions including many of the larger positions. The second was the establishment of a successful auction procedure in the event it could not reach agreement on the price for a repurchase. Therefore, on January 20, 2010, Treasury posted on OFS' website the *Warrant Disposition Report*, which provides a detailed explanation of each issuer repurchase and auction warrant disposition result as of the publication date.[15] To provide enhanced transparency and analysis regarding the auctions, Treasury's Office of Economic Policy and Office of Financial Stability released *Treasury Analysis of Warrant Auction Results* on March 18, 2010. This report confirms the validity of the warrant auction valuations based upon a comprehensive review of the data from four significant and recent auctions.

We note that the SIGTARP audit released this week entitled *Assessing Treasury's Process to Sell Warrants Received from TARP Repayments* concluded that Treasury has successfully negotiated prices from institutions that wished to repurchase their warrants that were at or above Treasury's estimated range of fair market value for such warrants. The report also described the valuation methodology to estimate fair market value and offered no suggestions for modifying that methodology. SIGTARP did offer some suggestions regarding documentation of the negotiation process, and regarding insuring consistency in the information provided to issuers seeking to repurchase their warrants. Treasury is reviewing these suggestions carefully and will make appropriate changes to its procedures. Throughout the warrant disposition process, Treasury intends to continue to provide the public with comprehensive detail and informative analysis.

Repurchases

I would like to now discuss the procedures for repurchases including our valuation methodology. Upon redemption of the preferred stock issued to Treasury, the financial institution has 15 days from repayment of the preferred stock to submit a bid, and Treasury then has 10 days to respond. If a company wishes to repurchase its warrants, then the issuer and Treasury must agree on the warrants' fair market value. This

[14] TARP Transaction Reports are published on OFS' website at the following link: http://www.financialstability.gov/latest/reportsanddocs.html.

[15] Treasury had auctioned warrants from JP Morgan Chase & Co., Capital One Financial Corp., and TCF Financial Corporation, generating gross proceeds of $1.1 billion as of the publication date. Since the report's 1/20/10 publication and as of 5/5/10, Treasury has sold warrants in 5 financial institutions through auctions and five financial institutions through repurchases.

process has resulted in the repurchase of warrants from CPP and TIP investments by 37 financial institutions, amounting to aggregate proceeds of $3 billion as of May 5, 2010.

Valuation

Little comparable market data has existed for long-dated warrants, particularly prior to the introduction of the warrant auctions discussed below. In order to protect taxpayers, Treasury devised a comprehensive process to determine fair market value when evaluating repurchase bids from the financial institutions based upon three primary inputs: market quotations, independent third party valuations, and model valuations.

To that end, Treasury seeks indications of value from several market participants active in the options and warrants markets. However, Treasury has warrants that are not listed on a securities exchange nor otherwise traded. These warrants do vary from typical listed warrants, mostly due to their long term (10 years). Therefore, the only observable market prices are for securities that have similar characteristics. The prices of these comparable securities can be used to assess the fair market value of the warrants held by Treasury. Comparable securities for the warrants held by Treasury include: traded warrants, traded options, and common equity issued by the institution as well as similar securities of peer institutions. In addition, Treasury uses the trading information of the recently auctioned CPP warrants as an indication of the market's expectations for long-term volatility. Treasury also obtains quotations from many relevant market participants that may include investment banks regularly trading options or other securities with embedded options (e.g., convertible bonds) or asset management firms focusing on the financial sector. The range of estimated valuations is included in Treasury's analysis along with the average of the market indications collected.

In addition, Treasury has retained external asset managers to provide independent, third party valuations for the warrants. The third party providers each furnish Treasury with an estimated valuation along with a range of potential valuations based upon a reasonable variance in assumptions underlying their models.

Finally, Treasury utilizes a number of financial models to estimate warrant valuations, with the primary model being the binomial option model adjusted for American style options, which is a well-accepted method for valuing options by both academics and market participants. Valuation estimates generated from the binomial model are incorporated into Treasury's analysis along with a range of potential values given a reasonable variance in key model valuation drivers. Such data include known inputs (i.e., expiration date, interest rates, and current stock price) and assumptions (i.e., future volatility, dividends, and liquidity discount.)[16] Treasury and its external asset managers use the 20-trading day trailing average stock price of a company in their valuations to minimize the effects of day-to-day market fluctuations. Market participants who provide Treasury with market indications utilize the stock price at the time that they provide the valuation. In addition, Treasury considers the implied valuations of those warrants sold in the auctions that now trade in the market as another market data point which assists in determining fair market value.

Treasury aggregates the data from the aforementioned internal and external valuation sources to determine an estimated fair market valuation for the financial institution's warrants. If the discussions

[16] Treasury does not apply a liquidity discount to large financial institutions.

with an institution continue over an extended period of time, Treasury and its external asset managers will update their estimates as necessary. Treasury may also collect new market quotations or adjust the market quotations based upon changes in market conditions from when the quotes were initially collected.

Warrant Committee

OFS has adhered to a consistent evaluation process to treat each financial institution fairly and similarly. Notably, each warrant issuer has unique characteristics, and each fair market valuation determination has different dynamics. Based upon the range of the estimated warrant valuations provided by the aforementioned sources, the Warrant Committee, which is comprised of Treasury officials within OFS, makes a recommendation to the Assistant Secretary for Financial Stability ("Assistant Secretary") as to whether to accept the financial institution's determination of fair market value. Each member of the Warrant Committee and the Assistant Secretary consider the three valuation metrics as well as a number of additional factors, including expertise and experience of the outside valuation consultants, quality and number of market indications received, significant movements in the stock price of the issuer since market indications were collected, size of the warrant position and potential investor interest in the warrants, and fixed transaction costs associated with selling the warrants to a third party. The Assistant Secretary has the ultimate authority to approve each warrant repurchase.

Results

Treasury has effectively disposed of warrants through repurchases by achieving fair market values which enhance the TARP investments and, in turn, protect the taxpayers. Treasury contracted Dr. Robert A. Jarrow, finance professor at Cornell University's Johnson School of Management and noted options expert, to review Treasury's warrant valuation process. Dr. Jarrow concluded in a September 22, 2009 report that "Treasury's financial model is only one component of a robust valuation procedure...The valuation process results in a warrant valuation that is fair to both the participating banks and the U.S. taxpayers."[17] On January 20, 2010, Treasury published its *Warrant Disposition Report*, a comprehensive review of Treasury's warrant valuation process which is available on the OFS website.[18]

Public Auctions and Third Party Sales

If a bank notifies Treasury following repayment of its preferred stock that it does not intend to repurchase its warrants or cannot agree with Treasury on the fair market price, Treasury disposes of the warrants, when possible, through public modified Dutch auctions which have been registered under the Securities Exchange Act of 1933, the first of which was held in December of 2009.[19] A Dutch auction establishes a market price by allowing investors to submit bids at specified increments above a minimum, specified price. Eligible bidders including the repaying financial institution may submit multiple independent bids at different price-quantity combinations at or above the minimum bid price to an auction agent, and the

[17] Treasury published Professor Robert A. Jarrow's report entitled *TARP Warrants Valuation Methods* dated 9/22/09 on the OFS' website at the following link: http://www.financialstability.gov/roadtostability/capitalpurchaseprogram.html.

[18] Treasury published its *Warrant Disposition Report* on OFS' website at the following link: http://www.financialstability.gov/latest/reportsanddocs.html.

[19] If the issuer and Treasury fail to reach a price, an appraisal procedure may be invoked by either party within 30 days following Treasury's response to the issuer's first bid. Under the appraisal scenario, the financial institution and Treasury each retain independent appraisers. If these appraisers cannot agree upon a fair market value, a third appraiser is retained to determine a value which is binding if accepted by the financial institution. To date, the appraisal procedure has not been invoked by any party.

warrants are sold at a uniform price that clears the auction.[20] Treasury may reject the auction results but has not done so to date. To date, Treasury has not sold warrants to a third party outside of the auction process. Treasury has auctioned warrants in 8 financial institutions, generating aggregate proceeds of approximately $3 billion since the first auction on December 3, 2009.[21] Such warrant disposition activity has yielded to the taxpayer an absolute return of 4% on Treasury's investment.

The warrant auctions have successfully attracted sufficient bidders, resulting in clearing prices in excess of the reserve price. Since the auctions for the warrants have been registered under the Securities Exchange Act of 1933, the warrant sales have been accompanied by a prospectus which provides significant disclosure about the issuer, processes, and other material information. Oversubscribed multiple times, such auctions have created a legitimate market with abundant information and significant participation to determine fair market values for these long-dated securities. Treasury's Office of Financial Stability and the Office of Economic Policy's joint report entitled *Treasury Analysis of Warrant Auction Results* examined three CPP warrant auctions and one TIP warrant auction each of which generated proceeds in excess of $100 million. This report determined that the warrant auctions were sufficiently robust in achieving a fair market price and confirmed the inability of any single bidder to influence the auction's final clearing price.[22] Further, Treasury's report concluded that including additional bidders would not have had a material impact on the clearing price.

Results from Repurchases and Auctions

Treasury has effectively executed warrant dispositions from both repurchases and auctions. One metric Treasury employs to measure the value it receives for warrant dispositions is implied volatility. While implied volatility incorporates several assumptions, generally, the higher the implied volatility of a transaction, the greater the value Treasury receives. To date, Treasury has only conducted warrant auctions in which the value of the warrant exceeds $5 million, which is generally associated with the minimum value necessary to list the warrants on a public exchange. In the bilateral warrant negotiations in which warrant proceeds exceeded $5 million, Treasury received an average implied volatility of 35%.[23] In Treasury's warrant auctions in which the market set the price, Treasury received an average implied volatility of 33%.[24] Comparing implied volatilities suggests that Treasury received better pricing in its negotiated transactions than it received in the warrant auctions.

In addition, the size of the warrant disposition has impacted the implied volatility. Treasury received an average implied volatility of 26% for negotiated warrant dispositions below $5 million in proceeds. Alternatively, Treasury received an average implied volatility of 34% for negotiated and auction dispositions at or above $5 million in proceeds. Therefore, the smaller warrant positions received a lower implied volatility. This 8% volatility differential may be from a number of factors, including a larger liquidity discount and relatively higher transaction costs that would be incurred for smaller position

[20] For each auction, Treasury establishes a minimum bid price for the bidders and determines a reserve price for internal purposes only. The auction clearing price is the highest offered price among the bidding group which results in a sale of all of the warrants to be sold.

[21] This figure does not include the Comerica Incorporation auctioned held on 5/6/10 with an expected 5/12/10 closing.

[22] U.S. Treasury Department *Treasury Analysis of Warrant Auction Results* dated March 18, 2010 analyzed the warrant auctions for Capital One Financial, J.P. Morgan, and Bank of America Corporation (CPP and TIP).

[23] OFS calculated the implied volatility data as of 5/5/10.

[24] The predominant number of warrant negotiations has been for proceeds exceeding $5 million. For comparison purposes, average implied volatilities are limited to negotiations and auctions with proceeds exceeding $5 million.

auctions. Finally, the warrant auctions have successfully determined warrant market prices which have remained stable in the aftermarket and therefore indicated that Treasury received fair value.

Conclusion

Treasury currently holds warrants in 18 financial institutions that have fully redeemed their CPP and TIP investments, and Treasury intends to sell those positions in the near term. Treasury also holds warrants in 237 public companies that have not repaid their CPP investments. Treasury intends to continue to execute a comprehensive and transparent process which achieves fair market values and protects the taxpayer interests. This program has been extremely successful to date, and Treasury will continue to strive for the optimum results on behalf of taxpayers. I look forward to answering the Subcommittee's questions. Thank you.

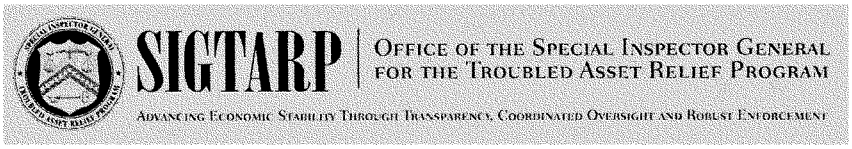
Appendix: Warrant Dispositions

Issuer Repurchases of Warrants

Institution Name	Ticker	Preferred Redemption Date	Preferred Amount Redeemed ($thousands)	Warrant Repurchase Date	Gross Warrant Proceeds ($thousands)	QED? (i.e. warrants cut by 50%)
Goldman Sachs Group, Inc.	GS	6/17/2009	$10,000,000	7/22/2009	$1,100,000	-
Morgan Stanley	MS	6/17/2009	10,000,000	8/12/2009	950,000	-
American Express Company	AXP	6/17/2009	3,388,890	7/29/2009	340,000	-
U.S. Bancorp	USB	6/17/2009	6,599,000	7/15/2009	139,000	-
Bank of New York Mellon	BK	6/17/2009	3,000,000	8/5/2009	136,000	-
Northern Trust Corporation	NTRS	6/17/2009	1,576,000	8/26/2009	87,000	-
BB&T Corporation	BBT	6/17/2009	3,133,640	7/22/2009	67,010	-
State Street Corporation	STT	6/17/2009	2,000,000	7/8/2009	60,000	Yes
City National Corporation	CYN	3/3/2010	400,000	4/7/2010	18,500	-
Trustmark Corporation	TRMK	12/3/2009	215,000	12/30/2009	10,000	-
FirstMerit Corp	FMER	4/22/2009	125,000	5/27/2009	5,025	-
Umpqua Holdings Corp.	UMPQ	2/17/2010	214,181	3/31/2010	4,500	Yes
First Niagara Financial Group	FNFG	5/27/2009	184,011	6/24/2009	2,700	Yes
Bank of the Ozarks, Inc.	OZRK	11/4/2009	75,000	11/24/2009	2,650	-
Independent Bank Corp	INDB	4/22/2009	78,158	5/27/2009	2,200	-
Sun Bancorp	SNBC	4/8/2009	89,310	5/27/2009	2,100	-
First Litchfield Financial Corporation	FLFL	4/7/2010	10,000	4/7/2010	1,488	-
SCBT Financial Corporation	SCBT	5/20/2009	64,779	6/24/2009	1,400	-
Bancorp Rhode Island, Inc.	BARI	8/5/2009	30,000	9/30/2009	1,400	-
CVB Financial Corp.	CVBF	9/2/2009	130,000	10/28/2009	1,307	Yes
Old National Bancorp	ONB	3/31/2009	100,000	5/8/2009	1,200	-
IBERIABANK Corporation	IBKC	3/31/2009	90,000	5/20/2009	1,200	Yes
Berkshire Hills Bancorp	BHLB	5/27/2009	40,000	6/24/2009	1,040	-
Wesbanco, Inc.	WSBC	9/2/2009	75,000	12/23/2009	950	-
Alliance Financial Corporation	ALNC	5/13/2009	26,918	6/17/2009	900	-
Flushing Financial Corporation	FFIC	10/28/2009	70,000	12/30/2009	900	Yes
HF Financial Corp.	HFFC	6/3/2009	25,000	6/30/2009	650	-
Wainwright Bank and Trust	WAIN	11/24/2009	22,000	12/16/2009	569	-
LSB Corporation	LSBX	11/18/2009	15,000	12/16/2009	560	-
Union Bankshares Corporation	UBSH	11/18/2009	59,000	12/23/2009	450	Yes
OceanFirst Financial Corp	OCFC	12/30/2009	38,263	2/3/2010	431	Yes
Somerset Hills Bancorp	SOMH	5/20/2009	7,414	6/24/2009	275	-
Monarch Financial Holdings	MNRK	12/23/2009	14,700	2/10/2010	260	Yes
Old Line Bancshares	OLBK	7/15/2009	7,000	9/2/2009	225	-
CenterState Banks, Inc.	CSFL	9/30/2009	27,875	10/28/2009	212	Yes
Manhattan Bancorp	MNHN	9/16/2009	1,700	10/14/2009	63	-
TOTAL	36		$41,932,839		$2,942,165	11

Auctions of Warrants

Institution Name	Ticker	Preferred Repurchase Date	Preferred Investment ($thousands)	Auction Date	Gross Warrant Proceeds ($thousands)	QED? (i.e. warrants cut by 50%)
Bank of America	BAC	12/9/2009	20,000,000	3/3/2010	$1,255,639	-
JPMorgan Chase & Co.	JPM	6/17/2009	$25,000,000	12/10/2009	950,318	-
PNC Financial Services	PNC	2/10/2010	$7,579,200	4/29/2010	324,196	-
Bank of America	BAC	12/9/2009	25,000,000	3/3/2010	310,572	-
Capital One Financial Corp.	COF	6/17/2009	3,555,199	12/3/2009	148,731	-
Washington Federal, Inc	WFSL	5/27/2009	200,000	3/9/2010	15,623	-
Signature Bank	SBNY	3/31/2009	120,000	3/10/2010	11,321	-
TCF Financial Corporation	TCF	4/22/2009	361,172	12/15/2009	9,600	-
Texas Capital Bancshares, Inc.	TCBI	5/13/2009	75,000	3/11/2010	6,709	-
TOTAL	9		$81,890,571		$3,032,709	0



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SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

STATEMENT OF KEVIN R. PUVALOWSKI

DEPUTY SPECIAL INSPECTOR GENERAL
OFFICE OF THE SPECIAL INSPECTOR GENERAL
FOR THE TROUBLED ASSET RELIEF PROGRAM

BEFORE THE
HOUSE COMMITTEE ON FINANCIAL SERVICES
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS

May 11, 2010

Chairman Moore, Ranking Member Biggert, and Members of the Committee:

Thank you for this opportunity to apprise you of the Office of Special Inspector General for the Troubled Assets Relief Program's ("SIGTARP") audit assessing Treasury's process to sell warrants it received from Troubled Asset Relief Program ("TARP") recipients.

Background

EESA mandated that financial institutions receiving TARP assistance provide warrants to Treasury as a way to generate additional returns for taxpayers. Under TARP's Capital Purchase Program ("CPP"), Treasury invested $204.9 billion in 707 banks and other financial institutions in exchange for preferred stock and, in some instances, debt securities. In connection with these CPP transactions, Treasury received warrants from 282 publicly traded banks and 402 companies that are private, S-corporations, or mutual holding companies. For these 402 companies, Treasury received warrants of additional preferred shares or debt instruments, in an amount equal to five percent of the CPP investment, that were immediately exercised when the investments were made, thus effectively providing Treasury more preferred shares or debt than it purchased. For publicly traded institutions, Treasury received warrants of common stock with a 10-year expiration date that give Treasury the right to purchase common stock worth 15 percent of the total amount of Treasury's CPP investment in the institution.

Treasury also received warrants for common stock in companies in connection with investments made under other TARP programs. Specifically, Treasury has received warrants from American International Group under the Systemically Significant Failing Institutions program, from Citigroup and Bank of America under the Targeted Investment Program, from Citigroup under the Asset Guarantee Program, from General Motors and GMAC under the Automotive Industry Financing Program, and from each of the Public-Private Investment Funds under the Legacy Securities Public-Private Investment Program.

As recipient institutions repay their TARP investments, Treasury sells the warrants, either directly to the recipient institution at a negotiated price or via public auction. Because warrants of this duration are not typically traded on an open market, however, determining their value is not straightforward. Treasury determines a fair market value estimate for the warrants, called a "composite value," after referencing three different pricing methods: market quotes, financial modeling outputs and third-party estimates. Treasury uses the composite value as a reference when considering whether to accept recipients' bids for the warrants.

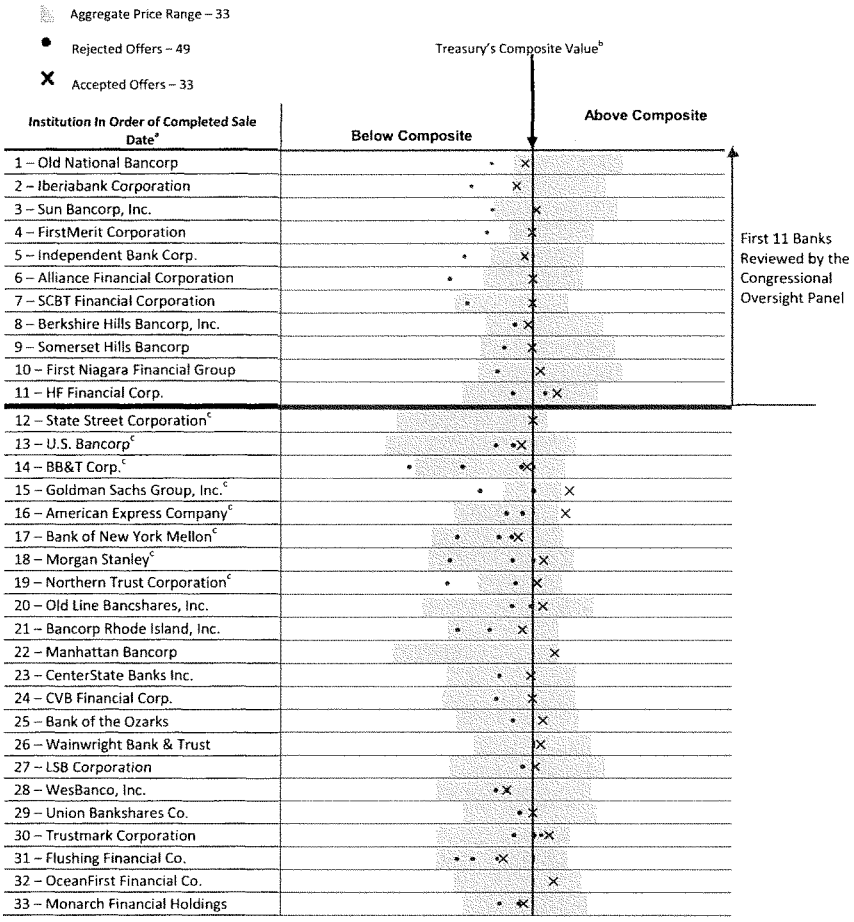
In light of this factual context, and consistent with the questions raised by Senator Jack Reed, Representative Maurice Hinchey, and others, SIGTARP's audit addressed (1) the process and procedures Treasury has established to ensure that the Government receives fair market value for the warrants; and (2) the extent to which Treasury follows a consistent and well-documented process in reaching its decision to sell warrants back to recipient institutions. Although SIGTARP's audit did not address Treasury's valuation methodologies, it is intended to complement a Congressional Oversight Panel report released on July 10, 2009, that examined the warrant valuation process.

Treasury's Warrant Repurchases

To its credit, Treasury has generally succeeded in negotiating prices from recipients for the warrants at or above its estimated composite value. Of the 33 public company warrant repurchases completed through March 19, 2010, 20 of the final negotiated prices were at or above Treasury's composite value, and 9 of the final negotiated prices were just under the composite value (generally between 90-99 percent of composite value). Of the 4 remaining transactions, 2 were the first two transactions completed (during which time Treasury was operating under a governing statute that limited how long Treasury had to negotiate and before Treasury had its valuation methodology worked out), and the other 2 were for warrants in small institutions that received less than $100 million in TARP funds (for which valuation is particularly difficult because of less liquidity in the bank's stock). Treasury has over time been more consistent in obtaining negotiated prices at or above its estimated composite value. Recent sales of warrants in larger, more widely traded firms have contributed to this trend, as has improved transparency in the market for long-term warrants overall. This is an important accomplishment that reflects a significant improvement in Treasury's ability to better realize returns for the taxpayer since the Congressional Oversight Panel's initial review of the warrant process in its July 2009 report. In total, for all warrant transactions (repurchases and auctions) through March 19, 2010, Treasury received $5.63 billion in proceeds from warrant sales.

The following chart illustrates the final negotiated price in comparison to Treasury analysts' estimate of value captured in the composite value. Treasury's decisions tend to center around its analyst's determination of composite value.

Comparison of Treasury's Acceptance of Offers and Composite Value for Completed Warrant Transactions through March 19, 2010



Notes: a. Bars are positioned on the axis in the order that the bank completed the warrant transaction.
b. Bars are not drawn to scale. The bars in this figure show the total range of all estimates provided by Treasury's three independent pricing mechanisms. Morgan Stanley submitted the same dollar amount as its second offer; hence, the graphic above appears to present only one offer because the offers overlap.
c. These are larger institutions that received at $1 billion or more in TARP funds.

Source: SIGTARP analysis of Treasury data.

SIGTARP's audit, however, identified two broad areas in which Treasury's process for selling warrants directly to financial institutions is lacking in ways that impair transparency and have led to a lack of consistency in the process.

The first area of concern is that Treasury does not sufficiently document important parts of the process, impairing transparency and making a comprehensive review of the integrity of the decision-making process impossible. This documentation issue manifests itself in two important contexts. One, Treasury lacks detailed documentation supporting the decisions of the Warrant Committee, the internal Treasury committee that reviews TARP recipients' offers to repurchase their warrants and makes recommendations to the Assistant Secretary on whether to accept or reject them. Most of the meeting minutes from Warrant Committee sessions were extremely limited and included only the name of the institution, the institution's offer amount, the name of the analyst who presented Treasury's analysis of fair market value, the analyst's recommendation on whether to accept or reject the offer, whether the offer was at or close to the analyst's composite value, and the final vote of the Warrant Committee members. Significantly, the minutes generally do not reflect the qualitative factors considered by the Warrant Committee members when making determinations whether to accept or reject a bank's offer, or their justifications or explanations for their decisions.

This lack of documentation contrasts significantly to that of Treasury's Investment Committee (part of the decision-making process for making TARP investments), even though both processes are designed to support a financial decision about a particular firm and both committees discuss analysts' assessments of potential transactions. Investment Committee minutes, for example, capture details regarding the qualitative factors that the Investment Committee members consider in support of each decision. SIGTARP found far less documentation supporting the warrants sale decision-making process than was standardized and required for the comparable TARP investment process.

This deficiency significantly limits the ability to test the consistency of Treasury's decisions. Treasury's decision making with respect to two institutions, HF Financial and Somerset Hills, for example, appeared inconsistent when viewed in light of the meager information provided in the Warrant Committee minutes. Although Treasury officials were able to provide justifications for the different treatment of the two institutions in interviews in connection with this audit, this is not an adequate alternative to proper documentation in the first instance. Memories fade over time (as demonstrated in the case of Somerset Hills, in which a member of the Warrant Committee could not recall the precise liquidity discount percentage that he identified as being key to his decision), Treasury officials leave office, and although SIGTARP does not question the explanations provided by Treasury during the audit process, it is also impossible to know, without adequate documentation, if the explanations accurately and fully reflect the factors the members of the Warrant Committee actually considered at the time they made their decisions. The development of a full record on decisions that can mean the difference of tens of millions of dollars to taxpayers should not depend on whether an oversight body happens to examine a particular transaction (particularly, when, as here, hundreds of transactions will be occurring over a period of years), if the particular decision maker happens to still be available, or if that decision maker has a detailed recollection of the transaction. Even assuming that Treasury is making decisions in every case based upon reasonable and fair rationales, in the absence of documentation Treasury leaves itself vulnerable to criticism that its decisions are unwise, arbitrary or unfair.

Even more troubling, Treasury similarly does not document the substance of its conversations and negotiations with the recipient institutions. Treasury officials can interact directly with the recipient institution on several occasions during the warrant repurchase process. As discussed below, the transactions examined in detail in this audit suggest that the amount of information provided to recipient institutions concerning the price that Treasury is likely to accept, information that is only shared with some institutions, can have a significant impact on the return realized by taxpayers. Because Treasury does not make note of these conversations (or even keep a list of the institutions with which it shares such information), however, SIGTARP was only able to partially reconstruct, for the sample of eight institutions interviewed for this audit, the substance of the conversations and their import based on interviews conducted at times long after the fact. Again, memories fade and with the passage of time and the occurrence of intervening negotiations, different parties to a conversation may have different recollections of what occurred. When a brief telephone call can mean the difference of tens of millions of dollars, it is a basic and essential element of transparency and accountability that the substance of that call be documented contemporaneously.

The second significant deficiency is that Treasury does not have established guidelines or internal controls over how the negotiations proceed, and in particular as to how much information is shared with recipient institutions about Treasury's estimated fair market value and the price it will likely accept for the repurchase of the warrants. Descriptions provided to SIGTARP by several of the banks that engaged in negotiations with Treasury confirmed that Treasury was willing to provide detailed information about its estimates, including clear indications as to what prices it was prepared to sell the warrants back to certain banks, but was unwilling to share similar details with others. Moreover, although Treasury indicated that it generally would not provide an indication of its valuation until the institution's bid was close and the Assistant Secretary stated that Treasury generally engaged in a strategy not to provide specific valuation numbers because it would give away key negotiating leverage, the cases examined in detail in the audit simply do not bear this out. Indeed, in the negotiation reviewed by SIGTARP, the amount of information provided, the circumstances of when information would be provided, and the results of the negotiation were all over the lot:

- Old National Bancorp received information about Treasury's valuation range even though its bid was less than half of Treasury's composite value; it came back with a bid just under the composite, which was accepted.
- Sun Bancorp's initial bid was only about half of Treasury's composite value. Treasury responded with a specific number that was substantially higher than its composite value. Sun's next bid was just over the composite value and was accepted.
- SCBT Financial was told expressly that its initial bid used too large a liquidity discount; SCBT's subsequent bid, which utilized Treasury's suggested discount, was essentially at Treasury's composite value and was accepted.
- Following conversations with Treasury, Somerset Hills was clear what Treasury's valuation range was; their subsequent bid was right at Treasury's composite value and was accepted.
- Treasury gave essentially no information to American Express about its valuation even though the bank's second offer, $260 million, was just $20 million (7.1 percent) less than Treasury's composite value of $280 million and thus within the percentage range where

other offers had been accepted. American Express's next bid, which was accepted, was $340 million, far in excess of Treasury's composite value.

- Treasury suggested a specific figure that it would accept from Sterling Bank, but Sterling found that figure to be too high, even after Treasury then offered an even lower figure. Its warrants will be auctioned.
- Treasury provided essentially no valuation guidance to JP Morgan Chase and suggested that it would not do so even if the bank submitted a further bid. As a result, JP Morgan declined to submit a subsequent bid and went to auction, at which Treasury received approximately $950 million, $50 million less than its composite value.

These differing approaches and results raise important questions: what rationale is there for such disparate treatment, and, if Treasury officials believe that not providing specific valuation figures generally leads to a better negotiating position, what was the contemporaneous justification each time that Treasury elected not to follow that strategy? There are potentially good reasons for treating institutions differently—owing to differences in the size of institutions and thus the liquidity of their stock and to the costs of an auction if negotiations fail, for example—but because Treasury does not document the negotiations with financial institutions and because there are no established guidelines or criteria for what information is shared or when it will be shared, it is impossible to determine with certainty after the fact whether the difference in the quantity and timing of the sharing of information is justified or consistently applied, or if those decisions resulted in a benefit or a detriment to the taxpayer.

The case of the negotiations with Morgan Stanley is illustrative of these deficiencies in Treasury's warrant disposition process.

- The Warrant Committee minutes do not describe what Treasury's reasoning was with regard to its consideration of Morgan Stanley's bid, or even what in fact occurred. The minutes reflect, without substantial explanation, that the Warrant Committee had approved Morgan Stanley's bid of $900 million; however, later documentation reflects, again without explanation, that the $900 million bid was not approved.
- Notwithstanding the fact that SIGTARP was told by the Assistant Secretary that he had not overruled any decisions of the Warrant Committee, in an interview, the Assistant Secretary explained that, after receiving a recommendation to accept Morgan Stanley's $900 million offer, rather than following that recommendation, he instead suggested that the Warrant Committee re-run its analysis with respect to Morgan Stanley because of an intervening increase in Morgan Stanley's stock price; that reason, however, was not documented.
- The critical telephone negotiation between the Assistant Secretary and Morgan Stanley officials during which Morgan Stanley's $900 million offer was rejected was not documented by Treasury, and the parties have significantly different recollections about that call. The Assistant Secretary initially said that Morgan Stanley called him, but the Morgan Stanley official told SIGTARP that it was the other way around. A contemporaneous document indicates that the Assistant Secretary initiated the call, and the Assistant Secretary later said that it is possible that he called Morgan Stanley, but that he just could not remember. The Assistant Secretary told SIGTARP that he does not negotiate on such calls but just listens to the recipients' pitch and/or conveys Treasury's

position; but Morgan Stanley stated that the Assistant Secretary made it clear that Treasury would not accept $900 million and that Morgan Stanley would have to bid substantially higher. Indeed, internal Morgan Stanley e-mail unambiguously states that the Morgan Stanley official understood from that call that Morgan Stanley would have to bid $950 million or face a public auction. The Assistant Secretary, however, told SIGTARP that he would not have told Morgan Stanley that they would have to bid at least $950 million because it would give away key leverage. He stated that, by not revealing Treasury's target price to the bidder, Treasury is more likely to receive a bid exceeding its valuation.

- Morgan Stanley ultimately bid $950 million, $50 million over Treasury's composite value and $50 million more than the Warrant Committee had initially approved.

Although the Assistant Secretary should be commended for exercising the initiative to intercede by overruling the Warrant Committee's initial recommendation and thus obtaining $50 million more for taxpayers from Morgan Stanley, this example shows how Treasury's lack of documentation at critical points in the process and the lack of overarching guidelines can lead to difficult questions. What were the specific factors that were contemporaneously considered by the Warrant Committee that led to its initial approval of Morgan Stanley's $900 million bid, and without documentation of those factors, how can Treasury determine what changes, if any, are needed in that deliberative process? What actually occurred on the critical call between the Assistant Secretary and Morgan Stanley? Could similar tactics by Treasury have resulted in similarly favorable prices for taxpayers from other large institutions? Why was Morgan Stanley apparently provided a price at which Morgan Stanley believed that the warrant transaction would close, while others, including American Express and JP Morgan Chase, were not? These difficult questions simply cannot be answered definitively after the fact because Treasury has not done an adequate job thus far in documenting its decision making and its negotiations, or in developing guidelines as to how much information is shared with banks during the negotiation process.

Unless Treasury addresses these deficiencies, it risks subjecting itself once again, fairly or unfairly, to criticism from third parties that through TARP it is favoring some institutions over others—picking winners and losers—irrespective of whether in fact it had legitimate reasons to take the negotiating positions that it did. Although SIGTARP acknowledges that every case is different and that Treasury needs to have some flexibility to address each particular situation, without some objective guidelines and, importantly, internal controls to ensure that such guidelines are followed, the risks and costs of arbitrary results and unjustifiable disparate treatment are just too great. The absence of documentation and uniform guidelines for negotiation may make it difficult for Treasury to defend itself convincingly against charges of arbitrariness or favoritism. Only through adoption of the recommendations below can Treasury minimize this reputational risk.

Audit Recommendations and Treasury's Response

To address the deficiencies that were identified, SIGTARP's audit recommends that:

1. Treasury should ensure that more detail is captured by the Warrant Committee meeting minutes. At a minimum, the minutes should include the members' qualitative considerations regarding the reasons bids were accepted or rejected within fair market value ranges.

2. Treasury should document in detail the substance of all communications with recipients concerning warrant repurchases.
3. Treasury should develop and follow guidelines and internal controls concerning how negotiations will be pursued, including the degree and nature of information to be shared with repurchasing institutions concerning Treasury's valuation of the warrants.

SIGTARP received an official written response to the audit report from Treasury. In that response, although Treasury stated that it did not agree with all of the report's findings, Treasury noted its view that the audit report should be helpful in explaining this complicated subject to the public. With respect to the audit report's recommendations, Treasury agreed to review their procedures to ensure that there is sufficient consistency in their process, but did not specifically respond to our recommendations; instead, Treasury indicated that it would respond more fully to the report's findings and provide a detailed description of the actions it intends to take with regard to the concerns raised in the report within 30 days. SIGTARP will provide an update on Treasury's follow-up response in its next Quarterly Report to Congress.

Chairman Moore, Ranking Member Biggert, and Members of the Committee:
I want to thank you again for this opportunity to appear before you, and I would be pleased to respond to any questions that you may have.

If you are aware of fraud, waste, abuse, mismanagement or misrepresentations affiliated with the troubled asset relief program, please contact the SIGTARP Hotline.

Via Online: WWW.SIGTARP.GOV
Via Toll Free Phone: 877-SIG-2009
Via Fax: 202-622-4559

Via Mail: Hotline, Office of the SIGTARP
1801 L St., N.W.
Washington, D.C. 20220

ASSESSING TREASURY'S PROCESS TO SELL WARRANTS RECEIVED FROM TARP RECIPIENTS

SIGTARP-10-006
MAY 10, 2010

SIGTARP

Office of the Special Inspector General for the Troubled Asset Relief Program

Summary of Report: SIGTARP-10-006

Why SIGTARP Did This Study

The Emergency Economic Stabilization Act of 2008 ("EESA") mandated that the Department of the Treasury ("Treasury") receive warrants or debt instruments when it invests in troubled assets under the Troubled Asset Relief Program ("TARP"). For public held institutions, the warrants provide Treasury the right, at its option, to purchase shares of common stock at a predetermined price. As recipient institutions repay their TARP investments, Treasury sells the warrants, either directly to the recipient institution at a negotiated price or via public auction.

Pricing the warrants is not straightforward, however, because there is limited market information concerning warrants of this duration. Treasury thus developed an approach to estimate fair market value in order to assess offers from institutions seeking to repurchase warrants.

This audit seeks to determine (1) the process and procedures Treasury has established to ensure that the Government receives fair market value for the warrants; and (2) the extent to which Treasury follows a consistent and well-documented process in reaching its decision to sell warrants back to recipient institutions.

What SIGTARP Recommends

SIGTARP recommends that Treasury (1) ensure that more detail is captured in Warrant Committee meeting minutes, in particular, about the members' qualitative considerations regarding why bids are accepted or rejected; (2) document in detail the substance of all communications with recipients concerning warrant repurchases; and (3) develop and follow guidelines and internal controls concerning how negotiations will be pursued, including the degree and nature of information to be shared with repurchasing institutions concerning Treasury's valuation of the warrants.

In commenting on a draft of this report, Treasury agreed to review their procedures to ensure that there is sufficient consistency in their process, but did not specifically respond to our recommendations; instead, Treasury indicated that it would respond more fully to the report's findings and provide a detailed description of the actions it intends to take with regard to the concerns raised in the report within 30 days. SIGTARP will provide an update on that response in its next Quarterly Report to Congress.

May 10, 2010

Assessing Treasury's Process To Sell Warrants Received from TARP Recipients

What SIGTARP Found

Once a publicly traded bank pays back its TARP investment, Treasury undertakes a process for the sale of the bank's warrants, either directly back to the bank through negotiation or to third parties through an auction. If a bank decides to repurchase its warrants, Treasury assesses the bank's bid after arriving at a "composite" estimated value for the warrants that references market quotes, financial modeling valuations, and third-party estimates. Treasury's Warrant Committee recommends whether to accept the offer, and the Assistant Secretary for Financial Stability makes the final decision. If a price cannot be negotiated, the warrants are auctioned publicly.

To its credit, Treasury has generally succeeded in negotiating prices from recipients for the warrants at or above its estimated composite value. Of the 33 warrant public company repurchases analyzed, 20 of the final negotiated prices were at or above Treasury's composite value, and nine of the final negotiated prices were just under the composite value. The four remaining transactions included the first two completed (during which time Treasury was operating under a governing statute that limited how long Treasury had to negotiate and before Treasury had its valuation methodology worked out) and two for warrants in small institutions that received less than $100 million in TARP funds (for which valuation is difficult because of less liquidity in the bank's stock). In total, for all warrant transactions (repurchases and auctions) through March 19, 2010, Treasury received $5.63 billion in proceeds from warrant sales.

This audit, however, has identified two broad areas in which Treasury's process for selling warrants directly to financial institutions is lacking in ways that impair transparency and have led to a lack of consistency in the process. The first is that Treasury does not sufficiently document important parts of the negotiation process: the substantive reasons for Warrant Committee decisions are not reflected in Warrant Committee minutes, and negotiations between Treasury and recipient institutions are not documented. This lack of documentation makes it impossible to test whether Treasury is fairly and consistently making decisions that could mean a difference of tens of millions of dollars for taxpayers.

The second significant deficiency is that Treasury does not have established guidelines or internal controls over how the negotiations proceed, and in particular as to how much information is shared with recipient institutions about Treasury's estimated fair market value and the price it will likely accept for the warrants. Descriptions provided to SIGTARP by several of the banks that engaged in negotiations with Treasury confirmed that Treasury was willing to provide detailed information about its estimates to certain banks, but was unwilling to share similar details with others. Moreover, although Treasury indicated that it generally would not provide an indication of its valuation until the institution's bid was close, the cases examined in detail in the audit do not bear this out. Indeed, the amount of information provided, the circumstances of when information would be provided, and the results of the negotiation varied widely.

Unless Treasury addresses these deficiencies, it risks subjecting itself once again, fairly or unfairly, to criticism from third parties that through TARP it is favoring some institutions over others—picking winners and losers—irrespective of whether in fact it had legitimate reasons to take the negotiating positions that it did. Although SIGTARP acknowledges that every case is different and that Treasury needs to have some flexibility to address each particular situation, without some objective guidelines and, importantly, internal controls to ensure that such guidelines are followed, the risks and costs of arbitrary results and unjustifiable disparate treatment are just too great. The absence of documentation and uniform guidelines for negotiation may make it difficult for Treasury to defend itself convincingly against charges of arbitrariness or favoritism. Only through adoption of the recommendations in this report can Treasury minimize this reputational risk.

OFFICE OF THE SPECIAL INSPECTOR GENERAL
FOR THE TROUBLED ASSET RELIEF PROGRAM
1801 L STREET, NW
WASHINGTON, D.C. 20220

May 10, 2010

MEMORANDUM FOR: The Honorable Timothy F. Geithner, Secretary of the Treasury

SUBJECT: Assessing Treasury's Process to Sell Warrants That It Received From TARP Recipients (SIGTARP-10-006)

We are providing this audit report for your information and use. It discusses the results of the 46 warrant repurchases completed as of March 19, 2010. As of that date, 33 banks had bought back their warrants through a negotiated process, seven banks allowed their warrants to be auctioned, and six private banks repurchased the preferred shares that Treasury received as the result of the warrants it exercised at the time of the investments. The audit highlights deficiencies in the documentation of and a lack of established guidelines and internal controls over the negotiation process.

The Office of the Special Inspector General for the Troubled Asset Relief Program ("SIGTARP") conducted this audit under the authority of Public Law 110-343, as amended, which also incorporates the duties and responsibilities of inspectors general of the Inspector General Act of 1978, as amended.

We considered comments from the Department of the Treasury when preparing the final report. The comments are addressed in the report, where applicable, and a copy of Treasury's response to the audit is included in the Management Comments appendix of this report.

We appreciate the courtesies extended to the SIGTARP staff. For additional information on this report, please contact Mr. Kurt Hyde, Deputy Special Inspector General for Audit (202-622-4633/kurt.hyde@do.treas.gov).

Neil M. Barofsky
Special Inspector General
for the Troubled Asset Relief Program

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ASSESSING TREASURY'S PROCESS TO SELL WARRANTS THAT IT RECEIVED FROM TARP RECIPIENTS

SIGTARP REPORT 10-006 MAY 10, 2010

Introduction

To facilitate a return to the taxpayer, the Emergency Economic Stabilization Act of 2008 ("EESA") mandated, with limited exceptions, that the Department of the Treasury ("Treasury") receive warrants from assisted financial institutions when it invests in troubled assets under the Troubled Asset Relief Program ("TARP"). For a specified period of time, the warrants provide Treasury the right to purchase, at a previously determined price, shares of common stock for publicly traded institutions, or preferred stock or debt for non-publicly traded institutions. Because warrants rise in value as the financial institution's underlying stock price rises, warrants give taxpayers an opportunity to benefit from an institution's potential recovery following the receipt of TARP funds.

Under TARP's Capital Purchase Program ("CPP"), Treasury invested $204.9 billion in 707 banks and other financial institutions in exchange for preferred stock and, in some instances, debt securities.[1] In connection with these CPP transactions, Treasury received warrants from 282 publicly traded banks and 402 companies that are private, S-corporations, or mutual holding companies.[2] For these 402 companies, Treasury received warrants of additional preferred shares or debt instruments, in an amount equal to five percent of the CPP investment, that were immediately exercised when the investments were made, thus effectively providing Treasury more preferred shares or debt than it purchased. For publicly traded institutions, Treasury received warrants of common stock with a 10-year expiration date that give Treasury the right to purchase common stock worth 15 percent of the total amount of Treasury's CPP investment in the institution.[3]

Under the CPP Security Purchase Agreement ("SPA CPP"), banks originally were not permitted to repay investments within the first three years unless the company completed a qualified equity offering of at least 25 percent of the CPP investment amount. On February 17, 2009, however, the American Recovery and Reinvestment Act 2009 ("ARRA") changed the timing of when CPP recipients could pay back its Treasury investment, providing that, "subject to consultation with the appropriate federal banking agency, [Treasury] shall permit a TARP recipient to repay [the

[1] As of December 31, 2009, CPP is closed to new applicants.
[2] Twenty-two community development financial institutions ("CDFIs") that received CPP funds were not required to issue warrants to Treasury
[3] According to the Annex D of the CPP Securities Purchase Agreement, the warrants received by Treasury do not entitle Treasury to any voting rights with respect to any voting stock prior to the date of exercise. This restriction also applies to any person to whom Treasury transfers the shares or warrants.

CPP investment] without regard to whether the financial institution has replaced such funds from any other source or to any waiting period." Pursuant to the CPP SPA, publicly traded banks are permitted, once the bank repays the CPP investment, to repurchase their warrants at a price equal to fair market value. On March 31, 2009, the first banks repaid Treasury, and on May 8, 2009, Old National Bancorp became the first CPP recipient to repurchase its warrants from Treasury.

Treasury also holds warrants for common stock in companies in connection with investments made under other TARP programs. Specifically, Treasury has received warrants from American International Group ("AIG") under the Systemically Significant Failing Institutions ("SSFI") program, from Citigroup and Bank of America under the Targeted Investment Program ("TIP"), from Citigroup under the Asset Guarantee Program ("AGP"), from General Motors and GMAC under the Automotive Industry Financing Program ("AIFP"), and from each of Public-Private Investment Funds under the Legacy Securities Public-Private Investment Program ("S-PPIP"). Treasury's disposition process has been the same for warrants acquired under all TARP programs.

As of March 19, 2010, 33 publicly traded banks had bought back their warrants when they repaid the CPP investment. In addition, Treasury auctioned the warrants of seven banks, including the warrants received from Bank of America under both CPP and TIP. Finally, six private banks also repurchased the warrant preferred shares that Treasury exercised at the time of the investment.[4] As of March 19, 2010, Treasury still held warrants in 242 public institutions.[5]

Audit Objectives

This audit, which was conducted in response to requests by Senator Jack Reed and Representative Maurice Hinchey, seeks to determine:

- the process and procedures Treasury has established to ensure that the Government receives fair market value for the warrants
- the extent to which Treasury follows a consistent and well-documented process in reaching decisions where differing valuations of warrants existed.

This audit complements a Congressional Oversight Panel report released on July 10, 2009, that examined the warrant valuation process. The scope of this audit covers 33 warrant repurchases by CPP recipient banks through March 19, 2010. We also reviewed auctions of seven banks' warrants that were auctioned through March 12, 2010.

[4] Treasury gave privately held banks that pay back the CPP investment the right to repurchase the preferred shares or debt that Treasury received when it previously exercised the warrants. Six privately held banks bought back at par value the preferred shares Treasury received when it exercised warrants at the time of the CPP investment. This audit does not address further those repurchased-at-par transactions.

[5] Since March 19, 2010, and as of April 29, 2010 per OFS Transaction report, six additional banks have repurchased their warrants. Of the 6, three went through the negotiated process, one went through the auction, and two additional privately held banks redeemed their additional preferred shares.

Background

On October 3, 2008, Congress enacted EESA to provide the Secretary of the Treasury with authority and facilities to restore liquidity and stability to the financial system. EESA requires that the Secretary use that authority and those facilities in a manner that, among other things, "maximizes overall return to the taxpayer of the United States." Under EESA, Treasury is required to obtain warrants in exchange for any Government investment over $100 million. Although not required by EESA, Treasury also received warrants for institutions that received less than $100 million, except for community development financial institutions ("CDFIs"). Treasury received warrants related to investments under CPP, SSFI, TIP,[6] AGP, AIFP, and S-PPIP. Appendix B provides information on the largest positions in warrants held by Treasury, listed by TARP program, as of March 19, 2010. Appendix C provides a summary of Treasury's CPP investments, including the number of institutions that provided warrants to Treasury as part of the capital investment.

Warrants 101 - Example

Assume that Treasury has the right to buy 100 shares of stock in a bank at a price of $10 per share; this price is called the strike price. During the term of the warrant, Treasury has the option to exercise the warrant and purchase shares from the company at the strike price. If the bank's stock is currently trading on the New York Stock Exchange at $12, for example, Treasury could purchase shares from the bank at $10 and sell them for a profit at the market price to make $2 per share. When, as in this example, a warrant's exercise price is lower than the current market price of the stock, the warrants are considered "in the money." When the strike price is above the stock's market price, it is "out of the money." However, even warrants that are "out of the money" have value, based on the possibility that the share price will eventually rise above the strike price. It is not unusual that warrants are "out of the money" at the time they are issued.

On October 14, 2008, Treasury announced CPP, a program with the stated goal of strengthening financial markets and increasing lending by making capital investments in healthy, viable U.S. financial institutions. In exchange for its CPP investments, Treasury obtained dividend-paying preferred shares or interest-bearing debt instruments. The preferred shares pay dividends of five percent in the first five years and nine percent afterward. The debt instruments, which were received from participants that are S-corporations, pay interest of 7.7 percent for the first five years and 13.8 percent thereafter.

In addition, Treasury generally[7] received warrants from CPP participants as a way to generate additional returns for taxpayers. For publicly held institutions, the warrants give Treasury the right to purchase common stock in the institution, in an amount equal in value to 15 percent of the CPP investment,[8] at a predetermined price called the "strike price,"

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[6] As of December 31, 2009, the Targeted Investment Program was effectively closed as both Citigroup and Bank of America repaid the funding received under this program. Treasury still holds the warrants it received from Citigroup, as of March 31, 2010. On March 29, 2010, Treasury announced that it intended to dispose of approximately 7.7 billion shares of Citigroup; however, the disposition does not affect Treasury's holdings of Citigroup warrants for its common stock.

[7] CDFIs, which are financial institutions that provide financial services to under-served communities, were not required to provide warrants to Treasury for investments less than $50 million.

[8] The CPP SPA provided that participants could halve the number of shares subject to their warrants by completing, before December 31, 2009, one or more qualified equity offerings with aggregate gross proceeds equivalent to the value of Treasury's CPP investment. A total of 38 CPP participants did so; of those, nine have repaid their CPP investments and Treasury has sold the corresponding warrants. In addition, under the CPP SPA, Treasury has the

at any time up to 10 years from the date of issuance. Treasury calculated the strike price by averaging the bank's common stock price during the 20-day period prior to the date when the bank was preliminarily approved for CPP funds. For companies that are private, S-corporations, or mutual holding companies, Treasury received the right to purchase, at a nominal price, additional preferred shares (or debt instruments) in an amount equal to five percent of the CPP investment. Treasury immediately exercised those warrants and thus effectively received more preferred shares or debt than it purchased.

The circumstances under which Treasury has been required to dispose of the warrants have changed over time. Under the standard CPP SPA, publicly traded TARP recipients are permitted to repurchase their warrants with proper notice to Treasury (after the bank has redeemed its preferred shares) at the fair market value.[9] On February 17, 2009, Congress enacted the American Recovery and Reinvestment Act of 2009 ("ARRA"), which required, following the repayment of TARP funding, that Treasury "*shall* liquidate warrants associated with such assistance at the current market price" (emphasis added). Treasury officials interpreted ARRA to mean that the warrants should be liquidated expeditiously once a bank repays the CPP investment. On May 20, 2009, Congress passed the Helping Families Save Their Homes Act of 2009, which amended the ARRA provision requiring Treasury to liquidate its warrants immediately upon TARP repayment. Specifically, Section 403 of the Act provided that Treasury, "at the market price, *may* liquidate warrants associated with such assistance" (emphasis added). According to Treasury officials, this amendment provided Treasury more flexibility, removing any requirement that the Secretary of the Treasury dispose of the warrants at any particular time. For a timeline of the key events and legislative amendments related to Treasury's warrant disposition process, see Appendix D.

On June 26, 2009, Treasury announced guidance for the warrant repurchase process for publicly traded institutions. A copy of this guidance is included in Appendix E. Treasury has stated that it intends to liquidate as quickly as practicable the warrants of institutions that have redeemed their CPP preferred shares. Pursuant to this guidance, if an institution wishes to repurchase warrants from Treasury, it must first take Steps 1 through 4 below; if a repurchase is not accomplished through those steps, Treasury can hold or dispose of the warrants as discussed in Step 5.

- **Step 1 – Notification to Treasury with Determination of Fair Market Value:** Any institution wishing to repurchase its warrants may notify Treasury within 15 days of repayment of TARP funds. According to the CPP SPA, the notification must include the number of warrants to be repurchased and the determination of fair market value from the board of directors. Moreover, the board of directors must be acting in good faith with reliance on an "independent investment banking firm." The independent appraiser must be hired by the TARP recipient. CPP banks may buy back the warrants at any time after the preferred shares have been repurchased.

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right to exercise or transfer half of the warrants it holds at any time for such institutions, even if they had not yet redeemed their preferred shares. As of March 19, 2010, Treasury had not done so for any bank.

[9] Publicly traded companies have an incentive to repurchase and retire warrants because the exercise of warrants of common stock results in the issuance of new shares, which diminishes, or "dilutes," the value of existing shares. Non-public TARP recipients have the right to repurchase the preferred shares and subordinated debt that Treasury took when it immediately exercised the warrants at the time their CPP transactions closed.

- **Step 2 – Treasury Evaluates the Repurchase Offer:** According to the CPP SPA and the guidance announced by Treasury, Treasury has 10 days to evaluate the TARP recipient's offer of fair market value. Treasury uses three different valuation methodologies to evaluate the CPP recipients' determination of fair market value of the warrants:
    - *Market Quotes* – The long duration warrants that Treasury holds are not listed on a securities exchange. Accordingly, Treasury uses market prices of securities with similar characteristics to assess the market value of the warrants. Securities with similar characteristics include publicly traded warrants and options of similar institutions. Treasury gathers quotes on the value of the warrants from 3-10 market participants, such as investment banks and asset management firms.
    - *Treasury's Financial Models* – Treasury conducts valuations based on well-known, common financial models, such as the binomial and Black-Scholes models. The models use various known inputs as well as assumptions about the volatility and dividends of the common stock of the institution to calculate the value of the warrants. To estimate the long-term volatility of the common stock, Treasury uses the implied volatility of any traded short-term options on the stock as well as the long-term historical average of 60-day trailing volatility for the past 10 years of the common stock price. Treasury also uses the implied volatility of publicly traded, long-dated warrants of similar institutions to determine the volatility assumption.
    - *Third-party Valuation* – Treasury uses eight external asset managers that it has hired to manage TARP assets to assess independently the value of each institution's warrants.
- **Step 3 – Resolution Period:** Should Treasury reject the TARP recipient's repurchase offer, the chief executive officer of the TARP recipient or a designee and a representative of Treasury meet to discuss Treasury's objections to the valuation proposed by the TARP recipient and attempt to reach an agreement. As of March 19, 2010, 33 warrant repurchases have occurred as a result of Treasury accepting a bank's initial offer or as a product of this effort to resolve Treasury's objections to the price offered by the bank.
- **Step 4 – Appraisal Procedure:** If no price is agreed upon after 10 days, either the institution or Treasury may invoke the "Appraisal Procedure." This involves Treasury and the TARP recipient each choosing an independent appraiser to agree upon the fair market value of the warrants. If the two appraisers are not able to agree upon a fair market value after 30 days, then a third independent appraiser will be chosen with the consent of the first two appraisers. The third appraiser has 30 days to make a decision, and, subject to limitations—such as if one of the three valuations is significantly different from the other two—a composite valuation of the three appraisals is used to establish the fair market value. Treasury will be bound by this price determination, but Treasury has stated that if the recipient is not satisfied with this price it may withdraw its notification to repurchase the warrants. Under the CPP SPA, the costs of conducting any appraisal procedure "shall be borne by the Company." As of March 19, 2010, no CPP bank has invoked the appraisal procedure.

- **Step 5 – Alternative Disposition:** If neither the institution nor Treasury invoke the "Appraisal Procedure," or if the institution decides not to seek to repurchase its warrants, Treasury has various options as to how it manages these investments over the 10-year exercisable period—it may sell them, exercise them, or hold them as it sees fit to otherwise maximize benefit to the taxpayers. On June 26, 2009, Treasury clarified its intentions on selling the warrants that it had received and indicated that it would publicly auction warrants in cases where it could not reach agreement upon a fair market value.

As of March 19, 2010, 46 CPP institutions had completely exited TARP, with Treasury selling its associated warrants holdings either directly to the issuers or via the public auction process. In addition, Treasury auctioned warrants obtained from Bank of America under the TIP. In total, Treasury received $5.63 billion from the sale of TARP warrants, broken down as follows:

- **Repurchase of Warrants Directly from Treasury** – $2.92 billion from 33 banks that transacted directly with Treasury to complete the warrant sales through March 19, 2010.
- **Proceeds from Auctions** – $2.71 billion from the auction of warrants from seven banks.
- **Sale of Preferred Shares** – $2.6 million from preferred stock repurchases by six privately held banks.

These proceeds provide an additional return to taxpayers from Treasury's investment beyond the dividend and interest payments it received on the related preferred stock or debt instruments. For a list of institutions, both public and private, that have repaid their TARP funds and repurchased their warrants as of March 19, 2010, see Table 1. These institutions are no longer part of TARP.

Table 1: TARP Warrant Repurchases, as of March 19, 2010

Institutions	Redemption Pursuant to a Qualified Equity Offering	Repurchase Date	Amount of Repurchase ($000)
PUBLIC INSTITUTIONS			
Old National Bancorp		5/8/2009	$1,200
Iberiabank Corporation	X	5/20/2009	$1,200
First Merit Corporation		5/27/2009	$5,025
Independent Bank Corp.		5/27/2009	$2,200
Sun Bancorp, Inc.		5/27/2009	$2,100
Alliance Financial Corporation		6/17/2009	$900
Berkshire Hills Bancorp, Inc.		6/24/2009	$1,040
First Niagara Financial Group	X	6/24/2009	$2,700
SCBT Financial Corporation		6/24/2009	$1,400
Somerset Hills Bancorp		6/24/2009	$275
HF Financial Corp.		6/30/2009	$650
State Street Corporation	X	7/8/2009	$60,000
U.S. Bancorp		7/15/2009	$139,000
BB&T Corp.		7/22/2009	$67,010
The Goldman Sachs Group, Inc.		7/22/2009	$1,100,000
American Express Company		7/29/2009	$340,000
Bank of New York Mellon Corp		8/5/2009	$136,000
Morgan Stanley		8/12/2009	$950,000
Northern Trust Corporation		8/26/2009	$87,000
Old Line Bancshares, Inc.		9/2/2009	$225
Bancorp Rhode Island, Inc.		9/30/2009	$1,400
Manhattan Bancorp		10/14/2009	$63
CenterState Banks of Florida	X	10/28/2009	$212
CVB Financial Corp.	X	10/28/2009	$1,307
Bank of the Ozarks, Inc.		11/24/2009	$2,650
LSB Corporation		12/16/2009	$560
Wainwright Bank & Trust Co.		12/16/2009	$569
Union Bankshares Corporation	X	12/23/2009	$450
WesBanco, Inc.		12/23/2009	$950
Trustmark Corporation		12/30/2009	$10,000
Flushing Financial Corporation	X	12/30/2009	$900
OceanFirst Financial Corp.	X	2/3/2010	$431
Monarch Financial Holdings, Inc.	X	2/10/2010	$260
Capital One Financial Corp[a]		12/3/2009	$148,731
JP Morgan Chase & Co[a]		12/10/2009	$950,318
TCF Financial Corporation[a]		12/15/2009	$9,600
Bank of America Corporation[a]		3/3/2010	$186,343
Bank of America Corporation[a]		3/3/2010	$124,229
Bank of America Corporation[a,b]		3/3/2010	$1,255,639
Signature Bank[a]		3/10/2010	$11,321
Texas Capital Bancshares, Inc.[a]		3/11/2010	$6,709
Washington Federal, Inc.[a]		3/9/2010	$15,623
PRIVATE INSTITUTIONS			
Centra Financial Holdings, Inc.		4/15/2009	$750
First ULB Corp.		4/22/2009	$245
First Manitowoc Bancorp, Inc.		5/27/2009	$600
Midwest Regional Bancorp, Inc.		11/10/2009	$35
1st United Bancorp, Inc.		11/18/2009	$500
Midland States Bancorp, Inc.		12/23/2009	$509
Totals	**46 Banks**		**$5,628,829**

Notes:

a. Treasury sold these banks' warrants through a registered public offering or auction.

b. This represents the sale of Bank of America Corporation's warrants received under the Targeted Investment Program.

Source: TARP Transactions Report, March 19, 2010.

Oversight of Treasury's Warrant Disposition Process

On June 17, 2009, the Government Accountability Office ("GAO") published a report that discussed Treasury's initial implementation of the warrant disposition process. According to GAO, at that point, Treasury had provided only limited information about the warrant repurchase process, and GAO recommended that Treasury "ensure that the warrant valuation process maximizes benefits to taxpayers and consider publicly disclosing additional details regarding the warrant repurchase process, such as the initial price offered by the issuing entity and Treasury's independent valuations, to demonstrate Treasury's attempts to maximize the benefit received for the warrants on behalf of the taxpayer." After Treasury published its June 26, 2009, guidance on its warrant valuation process, GAO confirmed in its October 2009 report that this recommendation was partially implemented.

On July 10, 2009, the Congressional Oversight Panel released the results of its technical valuation of Treasury's warrants. Based on the result of its own financial modeling of the warrants, the Congressional Oversight Panel concluded that "eleven small banks have repurchased their warrants from Treasury for a total amount that the [Congressional Oversight] Panel estimates to be only 66 percent of its best estimate of their value." The Congressional Oversight Panel later reported in its January 13, 2010 report that "subsequent to the publication of the July report, an additional 25 financial institutions have repurchased their warrants or sold warrants in auction sales, generating total aggregate proceeds to Treasury of $4.0 billion, which represented more than 92 percent of the [Congressional Oversight] Panel's best estimate of their values." The July report recommended that "Treasury should promptly provide written reports to the American taxpayers analyzing in sufficient detail the fair market value determinations for any warrants either repurchased by a TARP recipient from Treasury or sold by Treasury through an auction, and it should disclose the rationale for its choice of an auction or private sale. Most important, Treasury should undertake to negotiate the disposition of the warrants in a manner that is as transparent and fully accountable as possible."

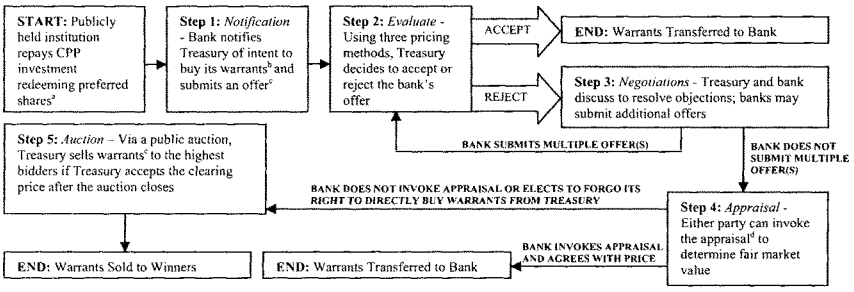
Initially, Treasury described the general process of its warrant repurchases without providing any detail about individual transactions other than the price at which the warrants were sold. This lack of transparency was criticized by SIGTARP, the Congressional Oversight Panel and GAO. On January 20, 2010, Treasury published its Warrant Disposition Report, which included information on Treasury's warrant sales process and decision-making considerations. The report included valuation estimates, banks' rejected offers, and accepted prices for 34 completed sales of warrants for public institutions through December 31, 2009. For those institutions that directly repurchased warrants, Treasury reported rejected and accepted offers, Treasury's price estimates used to assess the submitted offers, and information on some of the assumptions Treasury and third parties used to arrive at its various price estimates. For those institutions whose warrants were sold at auction through December 31, 2009, Treasury described the initial offer it received from the bank and the results of the auctions after the bank elected not to continue direct negotiations with Treasury. For each warrant sale, Treasury showed a graphical representation of the final estimates used by Treasury officials when analyzing a bank's offer for its warrants. An example of this graphical representation is provided in Appendix F.

Treasury's Process to Sell the Warrants

This section discusses the process Treasury takes to determine the appropriate price for the sale of warrants and describes its process for negotiating the repurchase of warrants from financial institutions.

Once a publicly traded bank pays back its TARP investment, there are steps (as noted previously in this report) that culminate in the sale of the warrants, either directly back to the bank through negotiation (or an appraisal process) or to third parties through an auction. For purposes of illustration, SIGTARP has labeled these as Steps 1 through 5. If the bank elects to offer to repurchase its warrants, the bank starts at Step 1 of the process, as described below. If Treasury rejects the offer, the bank can make a new offer that Treasury will consider. If the bank elects to forgo its opportunity to make an offer or cannot agree with Treasury on a negotiated price for the warrants, Treasury proceeds to Step 5, the auction process. Figure 1 provides a summary of the various steps of Treasury's warrant disposition process.

Figure 1: Treasury's Warrant Disposition Process for Public Institutions



Notes:

a. For privately held institutions and S-Corporations, Treasury immediately exercises the warrants at the time of the initial CPP transaction and receives additional preferred shares or subordinate debt as a result.
b. If the institution does not wish to repurchase the warrants, Treasury can sell the warrant to a third party; however, Treasury is required to notify the institution at least 30 days prior to the sale of the warrants in an effort to reissue and register warrants to allow sale to third parties.
c. The board of directors must certify to Treasury that they acted in good faith to arrive at the fair market value determination.
d. The determination by the independent appraisers is binding on Treasury if the institution chooses to proceed with the sale.
e. At any time throughout this process, the institution may revoke its intent to repurchase its warrant, at which point Treasury proceeds to the auction process.

Source: SIGTARP analysis of the Securities Purchase Agreement.

Step 1: Notification to Treasury with Determination of Fair Market Value

If the bank decides to make a repurchase offer, it notifies Treasury of its intent to make an offer and may do so within 15 days of repayment of the TARP investment.[10] The offer must include the number of warrants the institution would like to repurchase, its board of directors' fair market value determination for the warrants, and a certification that the bank was "acting in good faith in reliance on an opinion of a nationally recognized independent investment banking firm." Treasury has 10 days to evaluate the offer.

Step 2: Treasury Evaluates the Repurchase Offer

Treasury's valuation team consists of three to five Treasury analysts and one supervisory analyst. This team prepares Treasury's assessment of offers from banks. Treasury assigns an analyst whose role is to evaluate the offer by using three pricing methods—market quotes, financial modeling outputs, and third-party estimates (third party's modeling outputs)—and determine the warrants' fair market value. These inputs drive Treasury's "composite value," which is the analyst's opinion of the appropriate price for the warrants.

Market Quotes

First, Treasury seeks observable market prices for a bank's 10-year warrants—a difficult task given the scarcity of warrants that have such a long term. If a market price for a specific bank's warrants is unavailable (as has been the case in every instance reviewed by SIGTARP), Treasury surveys the market for parties that are willing to provide voluntary indicative bids. An indicative bid is a price quote provided for informational purposes but not for purposes of executing a trade. Treasury solicits bids from 10 to 15 firms, including investment banks, hedge funds, and asset management firms active in the options markets. Treasury's process requires a minimum of three market quotes.[11] According to Treasury, firms receive no confidential information from Treasury and must rely on publicly available information in making their quotes.

Market quotes typically generated the lowest estimates of Treasury's three pricing methods. According to Treasury, indicative market bidders—the firms that provide the price quotations—may tend to price the warrants as much as they are willing to pay for them and not necessarily fair market value. A senior Treasury official told SIGTARP that one of the limitations of this pricing method is that the bidders have no stake in the transaction. SIGTARP found that the market quotes tended to be below the final negotiated price, with only 2 of 33 warrant repurchases analyzed by SIGTARP with market quotes above Treasury's final negotiated price.

[10] Treasury is free to sell the warrants any time up until it receives an offer from the bank, however, Treasury must give the institution 30 days notice before selling the warrants.

[11] Treasury continues to solicit market quotes from market participants until a minimum of three prices are obtained.

Financial Modeling Outputs

The analyst also uses two financial models to estimate the fair market value of the warrants. These models—a Black-Scholes model and a binomial model—are generally accepted as standard option valuation tools throughout the financial industry. These models produce a range of potential values based on known inputs such as the maturity date of the warrant (here, 10 years) and the warrant's strike price (established in the CPP contract), and on certain assumptions of future activity, such as the future volatility of the underlying stock price and future dividend payments.

Treasury also uses observable market prices when estimating its model inputs, such as 2-year Long Term Equity Anticipation Securities (also known as LEAPS), which are options with longer terms than other more common options. In addition, since the recently auctioned warrants trade in the secondary market, there are now observable market prices that Treasury uses when determining key inputs to its modeled valuation.

After Treasury computes an estimated value using the financial models, the Treasury analyst may also apply a liquidity discount based on, among other things, the volume of shares traded and the extent to which the security can easily be sold in the market. This discount attempts to quantify the markdown that the market would apply to the value of the warrants because of the difficulty of selling infrequently traded securities (such as long-maturity warrants in small banks) in the market. For large institutions, Treasury does not apply a liquidity discount.[12]

Table 2 on the next page provides definitions of Treasury's key model assumptions, summarizes Treasury's approach to calculating each assumption, and describes Treasury's rationale for its approach on how it estimates each assumption.

Warrants 101 - Modeling

The Black-Scholes model calculates the value of an option based on the price movements of the underlying stock. The model is geared for pricing European-style options that cannot be exercised before expiration, whereas American-style options—like CPP warrants—can be exercised at points in time before and up to the warrant's maturity. The Black-Scholes model has some limitations, such as the fact that several of the model's assumptions do not account for changes over time.

The binomial model uses the same analytical approach as the Black-Scholes model; however, its assumptions vary over time as opposed to the assumptions remaining constant. The binomial model accounts for changes in stock prices over time intervals, dividend-paying stocks, and more long-dated warrants. Therefore, the model can calculate the price of an American-style option, determining at each point in the warrant's life where the underlying share price will exceed the strike price (referred to as intrinsic value).

Treasury applied a combined approach of using both Black-Scholes and binomial models. For both models, the price depends on the input assumptions used. Accordingly, warrant valuation varies significantly based on the assumptions that an individual modeler inputs into the models. Because it is difficult to predict the future activity of prices, dividend payments and other events, two modelers who use the same models may arrive at very different prices because of varying assumptions. Differing assumptions about the volatility of the institution's common stock price, for example, can drive significantly different values.

[12] In its July 10, 2009 report, the Congressional Oversight Panel questioned Treasury's decision to include a liquidity discount. The Congressional Oversight Panel's own analysis did not include such a discount because, in its view, Treasury has the option to hold the warrants until expiration and therefore illiquidity is irrelevant.

Table 2: Treasury's Financial Modeling Assumptions

Definition	Treasury's Methodology for Calculating the Assumption	Treasury's Rationale for Using the Assumption
	Stock Price	
The stock price is the price of a single share of the institution's common stock, which is the asset Treasury would receive if the warrant is exercised. The higher the stock price, the higher the value of the warrant.	Treasury uses a 20-day trailing average of past stock prices to smooth any dramatic short-term fluctuations in the stock's price movements. To account for the industry practice of using the current stock price, Treasury also considers the current stock price to include any recent shifts that may impact valuation.	According to a Treasury official, then-Assistant Secretary Neel Kashkari decided to use the 20-day trailing average because it is the same method used to calculate the strike price set in the CPP contract.
	Volatility	
Volatility reflects the unpredictable changes of the underlying stock's price throughout the life of the warrant. Higher volatility will increase the value of the warrant because, with higher volatility, there is a higher probability that the stock price will exceed the warrant's strike price.	Treasury uses both historical and option-implied volatility to estimate future volatility of a company's stock price. For historical volatility, Treasury calculates the 60-day trailing average volatility for the last ten years. Some larger, public institutions have options with maturities of up to two years. Using prices of these shorter-maturing options, Treasury forecasts option-implied volatility over ten years. Treasury's recent auctions created a market for 10-year warrants; accordingly, Treasury incorporates volatility data from these traded warrants.	Treasury uses the 60-day trailing average to smooth out daily price swings. Treasury also considers 6 months to 10 years of past market volatility data to project the stock's future volatility.
	Dividend Payments	
Dividends are the payments made to common shareholders for investing in the company. Higher dividend yield will decrease the price of the warrant by eroding the value of the underlying shares.	Treasury analyzes the bank's dividend payment history and reviews the implied or explicit dividend policies issued by the institution. Treasury reviews historical dividends over the last 10 years as an indication of how to estimate future dividend payments.	Treasury assumes that dividends normalize over time and thus uses a constant yield based on historical observations.
	Liquidity Discount	
A liquidity discount is a discount to account for an investor holding shares that are not easily sold in the secondary market. Higher liquidity discounts will decrease the price of the warrant.	Treasury applies liquidity discounts from 0 to 50 percent. A Treasury contractor developed a survey of the CPP banks to establish a range of possible liquidity discounts. Treasury assesses the ranges from the survey and the factors of the institution to determine where the bank falls within that established range relative to its peers. Qualitative factors include stock volatility and average daily trading volume of the underlying stock. Treasury also compares the model price of the bank to liquid option prices.	Treasury's liquidity discount depends on, among other things, the size of the warrant position, the average trading volume of the underlying stock, and the liquidity of the equity underlying the warrants. For Treasury, the institutions whose shares are widely traded do not receive a discount.

Note: For CPP warrants, the warrant's maturity date and strike price are established in the CPP contract.

Source: This table was compiled from multiple sources, including Congressional Oversight Panel July 10, 2009 Report; Treasury June 26, 2009 Announcement on Warrant Valuation and Disposition; "TARP Warrants Valuation Methods" written by Robert A. Jarrow dated September 22, 2009; OFS Iberiabank Warrant Valuation Models and Methodology; and SIGTARP interviews of OFS staff.

Third-party Estimates

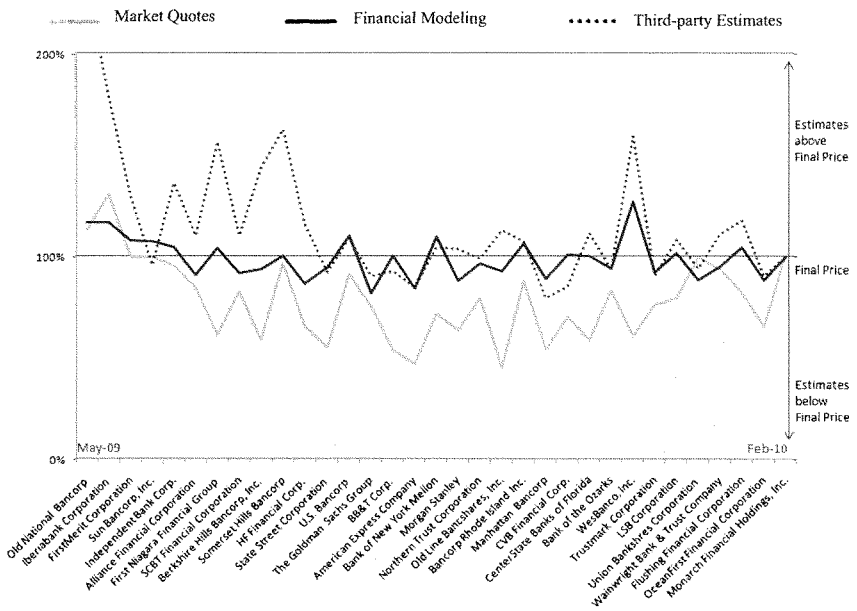
To provide an independent price assessment, Treasury employs one of eight asset managers to run its own proprietary valuation models to arrive at an independent price to use for Treasury's analysis. According to Treasury, each of these eight firms is assigned a group of banks for purposes of warrant valuation. When banks are starting the process to buy back their warrants, Treasury contacts one of the eight firms to obtain a third-party valuation.

Prior to April 2009 and for the first two warrant sales, Treasury relied on financial modeling consultants to provide the third-party estimates, which according to Treasury, "may not have had market expertise necessary to make reasonable assumptions for key inputs such as volatility and dividend yield." Treasury hired three of the eight current asset managers in April 2009 following an evaluation of about 200 companies that submitted proposals to a publicly announced solicitation in November 2008. Treasury hired the remaining five asset management firms in December 2009. According to Treasury, it expanded the asset manager selection to hire more diverse firms in addition to the three firms already retained.

For the first 11 warrants analyzed, SIGTARP found that the third-party estimates generally tended to be the highest of the three pricing methods. After the first 11 banks, third-party estimates more closely aligned with Treasury's financial modeling estimates. Treasury's largest asset manager—AllianceBernstein—told SIGTARP that it has refined the inputs for its valuation based on the results of the auctions and completed warrants repurchase transactions.

In an analysis of 33 warrants repurchases through March 19, 2010, SIGTARP found that Treasury's model estimate tended to be in the middle of the three pricing methods and was generally the one closest to the final negotiated price. Figure 2 provides a graphical depiction of how final prices have compared to estimates from the three different valuations—market quotes, financial modeling, and third-party estimates—for 33 warrant repurchases.

Figure 2: Fair Market Value Estimates as Percentages of Final Warrant Prices



Source: SIGTARP analysis of OFS warrant files.

Assessment of the Bank's Determination of Fair Market Value

After Treasury collects estimated price ranges from the three pricing methods, the Treasury analyst graphs the estimates from these ranges and plots the bank's offer to assess where within the ranges the offer falls.[13] An example of how Treasury plots these ranges and the bank's offer is provided in Appendix F. From these three price ranges, the Treasury analyst determines a composite value (also referred to in Treasury documents as an estimate of fair market value). The analyst presents the analysis to the Warrant Committee. The Warrant Committee then votes to recommend that the Assistant Secretary accept or reject the institution's offer.

[13] Prior to June 2009, the written fair market value assessment and graph also included what Treasury refers to as a "fundamental analysis," which is an analysis of value based on the fundamental facts about a company such as sales, earnings, and dividend prospects. In June 2009, the fundamental analysis was removed by Assistant Secretary Allison because it was not industry standard for valuation. Treasury analysts told SIGTARP that, prior to its removal, they considered the fundamental analysis as a check to the other valuation estimates and that the analysis was "not really important" and "not a material input" to Treasury's determination of fair market value.

Treasury officials describe the composite value as what, after analysis, the analyst believes the warrants are worth. Treasury does not have formal guidance or written policies on how the analyst determines the composite value, and, according to Treasury's CPP staff, this determination of fair market value is largely done on a case-by-case basis, depending on the analyst's subjective weighing of the three price estimates and the following factors:

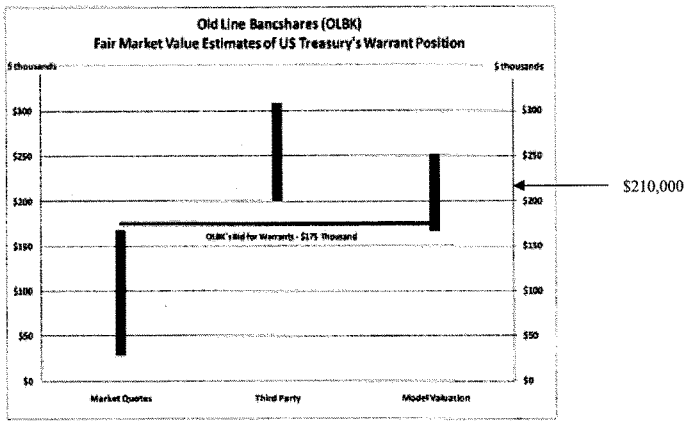
- Existence of outliers within the pricing methodologies
- Spreads of the ranges of the three fair market value estimates
- Market volatility of the underlying stock price
- Size of the institutions for purposes of measuring liquidity of the underlying stock

Treasury's CPP staff stated that it is difficult to have procedures to determine how to set the composite value because each offer differs. The CPP team told SIGTARP that, basically, the preparer compares the three valuation metrics and decides where the most agreement between the three price ranges regardless of whether the point incorporates prices from all three ranges. Where the composite value line is drawn within these three ranges is a judgment call, and thus the composite value may depend on which analyst works on a particular warrant.[14]

When SIGTARP requested the rationale for the composite price calculation, the CPP staff demonstrated the approach for Old Line Bancshares. Using the bar charts in Figure 3, the staff pointed to where the CPP team thought the three estimates converged, which in Treasury's opinion was around $200,000 or $210,000. Old Line Bancshares' warrants were sold back to the bank at $225,000.

[14] This has particular importance in light of the fact that the analyst's recommendation has, thus far, been followed by the Warrant Committee in every case and by the Assistant Secretary in all but one case.

Figure 3: Excerpt from Analyst's Fair Market Value Determination, August 7, 2009



Note: SIGTARP added $210,000 in the margin for demonstrative purposes.
Source: OFS warrant files.

The Treasury analyst next prepares a recommendation on the banks' offer that includes a detailed written fair market value assessment. The documentation of the assessment provides summary details of Treasury's warrant position in the bank, the details of the bank's submitted offer, the analyst's graphical representation of the three fair market value ranges, the submitted offer, the composite value, and an explanation of how each of the three price ranges were derived. For an example of the analyst's documentation of a fair market value determination, see Appendix G.

Warrant Committee Makes a Recommendation to the Assistant Secretary

Although the Assistant Secretary for Financial Stability ultimately decides whether to accept or reject an offer, Treasury established a CPP Warrant Committee ("Warrant Committee")[15] to recommend whether an offer should be accepted or rejected. When the Warrant Committee convenes, the Treasury analyst who performed the analysis and set the composite value (a qualitative judgment) presents his fair market value assessment to the Warrant Committee members. Warrant Committee members told SIGTARP that the composite value is not necessarily determinative. The committee members also rely on the quantitative analysis represented by the three evaluation metrics in deciding whether to accept or reject a financial institution's determination of fair market value. Each member of the Warrant Committee and the Assistant Secretary weigh the three valuation ranges as they deem appropriate. In addition, they consider the analyst's presentation and recommendation as well as the following factors in determining whether to accept or reject an offer:

[15] The Warrant Committee consists of the CPP Director, Deputy Director, Head of CPP Asset Management, and a representative from the Office of the Chief Investment Officer.

- Comparison of the offer to Treasury's valuation metrics
- significant movements of the current stock price
- deviations of the current stock price from the 20-day trailing average of the stock price
- trading volume of the underlying stock
- size of the institution
- potential auction costs
- potential investor interest in the warrants

For example, according to Treasury, if a bank's offer is only slightly below Treasury's composite value, and the value of the warrant position is low enough that the costs of auctioning the warrants will make material difference in the actual return to taxpayers, it does not make sense for Treasury to reject and go to auction when the costs associated with the auction, which are approximately the greater of $150,000 or 1.5 percent of the auction's proceeds, outweigh the difference between the offer and Treasury's estimate of fair market value. Treasury also told SIGTARP that the Warrant Committee considers whether the current stock price of the bank has been rising significantly over the course of Treasury's valuation period. For example, at the time of the decision to accept Goldman Sachs' offer of $1.1 billion, the bank's common share price was $159.80 compared to the 20-day average price of $148.16. According to Treasury, "this difference was taken under consideration in Treasury's analysis of the company's determination of fair market value." Treasury accepted Goldman Sachs' offer of $1.1 billion.

SIGTARP found, based on documentation provided by Treasury, that the Warrant Committee unanimously voted in agreement with the analysts' recommendation for every one of the offers assessed for 33 completed sales through March 19, 2010.

After the Warrant Committee votes[16] on the recommendation to accept or reject an offer, it is submitted to the Assistant Secretary for consideration, along with the Warrant Committee minutes and the analyst's fair market value assessment. The Assistant Secretary told SIGTARP that, in addition to the composite value, he considers all three fair market value ranges when contemplating an offer. According to the Assistant Secretary, he has not overruled the Warrant Committee recommendation in any case. However, as discussed more fully below, SIGTARP found in one case (Morgan Stanley) that after the Warrant Committee approved the firm's bid of $900 million, the Assistant Secretary told Morgan Stanley that Treasury was not prepared to accept its bid for that amount. Morgan Stanley bid $950 million, which was accepted.

A review of the Warrant Committee minutes for 33 warrants repurchases through March 19, 2010, found that Treasury did not document the qualitative factors considered by the Warrant Committee members when making determinations whether to accept or reject a bank's offer. Most of the meeting minutes from Warrant Committee sessions were limited and included only the name of the institution, the institution's offer amount, the name of the analyst who presented Treasury's analysis of fair market value, the analyst's recommendation on whether to accept or reject the offer, whether the offer was at or close to the analyst's composite value or fair market

[16] The Warrant Committee requires three members for a quorum.

value range, and the final vote of the Warrant Committee members. Figure 4 provides an example of Warrant Committee Meeting minutes that was typical of the amount of detail provided for the banks in our audit.

Figure 4: Example of Treasury's Warrant Committee Meeting Minutes

CPP Warrant Committee Minutes
June 17, 2009
11:45 A.M.
1801 L Street
Minutes by [redacted]

CPP Warrant Committee Members in Attendance:
[redacted] (via telephone)
[redacted]

Staff Members in Attendance:
[redacted]

Meeting Notes

1. UST 200 – Berkshire Hills Bancorp
   a. [redacted] presented, and recommended that UST accept the revised offer of $1,040m which is close to Treasury's determination. This recommendation was accepted 4-0.

2. UST 269 – Somerset Hills Bancorp
   a. [redacted] presented, and recommended that UST accept the revised offer of $275k which is at Treasury's range. This recommendation was accepted 4-0.

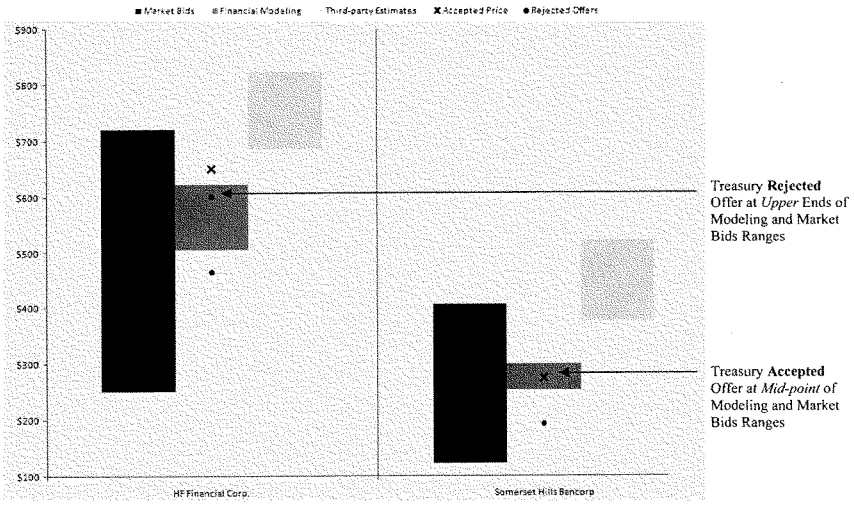
Source: SIGTARP analysis of OFS warrant files.

The minutes often focus on how close the offer is to Treasury's determination or range and do not document the factors the Warrant Committee members reportedly considered when recommending whether to accept or reject an offer.[17] As a result of the lack of detailed documentation of the Warrant Committee's considerations, SIGTARP could not determine the extent to which the Warrant Committee made decisions consistently or objectively across institutions, and it is difficult to determine from the documentation why Treasury accepted prices for some institutions but rejected similar bids from others.

For example, Figure 5 provides a comparison of two banks' rejected and accepted offers within Treasury's ranges of fair market value estimates. In one, Treasury accepted Somerset Hills' second offer, which was above the mid-point for the market quote range and at the mid-point of Treasury's financial modeling range. However, Treasury rejected HF Financial Corp.'s second bid, which was above both of these ranges. In both examples, the Warrant Committee followed the analyst's recommendation.

[17] This level of documentation contrasts with the details provided in minutes of meetings of the Investment Committee, which is a similar decision-making committee that makes recommendations to the Assistant Secretary regarding the investment of TARP funds. In Investment Committee meeting minutes, Treasury documents details of each company and records the considerations discussed by the various Committee members that factored into the final recommendation.

Figure 5: Comparison of Two Banks' Rejected and Accepted Offers within Treasury's Ranges of FMV Estimates ($000s)



Source: SIGTARP analysis of OFS warrant files.

A review of the Warrant Committee minutes for these banks did not reveal any rationale for the apparent difference in treatment between these two institutions. These are the notes from the Warrant Committee minutes for the second offers from these two banks:

- **Somerset Hills Bancorp** – June 17, 2009: [Analyst A] presented, and recommended that UST accept the revised offer of $275[000] which is at Treasury's range. This recommendation was accepted 4-0.
- **HF Financial** – June 29, 2009: [Analyst A] presented HF's revised offer of $600,000. He recommended that UST ask for a final offer of $650,000 and conditionally accept that offer, if made by HF. This recommendation was accepted 3-0.

A member of the Warrant Committee told SIGTARP that he agreed with the analyst's decision to reject HF Financial's second bid of $600,000 because Treasury's financial modeling valuation should have been higher than what was depicted in the charts (as shown in Figure 5). He added that the Treasury analyst ran the financial model and then applied a 50 percent liquidity discount to the price. However, the third-party estimates and the bank's offer used a 30 percent liquidity discount, which he believed was more appropriate. Adjusting the liquidity discount (without re-running the model) from 50 percent to 30 percent increased the modeling estimate of fair market value from $550,000 to more than $600,000. Accordingly, the Warrant Committee did not accept

HF Financial's second bid. The same Warrant Committee member said it was his recollection that, for Somerset Hills's second bid, Treasury was already using a 30 percent liquidity discount, and, therefore, he agreed with the analyst that they should accept the bank's offer. Furthermore, Treasury stated that the value of the warrant position was very small (under 400,000) and that the fixed costs of running the auction and legal fees (a minimum of $150,000) would significantly reduce the real return to the taxpayer. Upon additional research, SIGTARP found Treasury actually applied a 40 percent liquidity discount to its model price for Somerset Hills. Although the Treasury analyst documented the liquidity discounts used in both cases, the Warrant Committee minutes did not reflect that the liquidity discount was a decision-making factor that led to the rejection of HF Financial's second bid, and thus SIGTARP cannot definitively verify the Warrant Committee member's *ex post facto* justification.

Step 3: Negotiation Period

If the Assistant Secretary rejects the initial offer, Treasury typically sends a rejection letter to the bank. The letter includes information for the bank to contact a Treasury analyst to start the process of resolving differences. The bank decides whether it wants to continue discussions if Treasury rejects its offer. If the bank decides to submit a subsequent offer, Treasury will assess the offer the same way it assessed the first offer. A Treasury analyst may collect additional market quotes or rerun the modeling component if there has been significant time between the first offer and the subsequent offer or if the Assistant Secretary requests it. The Warrant Committee reconvenes to review the new offer and determines whether it is acceptable. Final acceptance remains with the Assistant Secretary. Of the 33 warrant repurchases SIGTARP reviewed, Treasury accepted 4 initial bids, 15 second bids, 9 third bids, 4 fourth bids, and 1 fifth bid.

With respect to Treasury's approach before holding conversations with an institution after the rejection of an initial offer, the CPP staff told SIGTARP that the valuation team analysts meet in advance of the discussion and agree on their strategy and approach on what will be discussed with the institution. Treasury stated that the amount of information it discloses to each institution is a result of where the bank is within these stages of the negotiation, although none of this information is reflected in formal guidelines:

- *Discovery Phase:* Treasury stated that the first discussions revolve around process. In this phase, Treasury communicates how the values were derived from three different methods of market quotes, model valuation, and third-party estimates. A Treasury official stated that "you can tell from the beginning who understands the process and who doesn't." According to Treasury, some banks do not understand or are confused by the contractual element of TARP and the warrants repurchase process. With such banks, Treasury has to educate them on the process. Treasury told SIGTARP that it does not tell banks where their offer falls within the three price ranges and what they can do to get it accepted. From time to time, Treasury might share more information on assumptions to get the institution moving in the right direction, but only if Treasury senses that the institution has come to an understanding regarding Treasury's three-pronged valuation methodology. According to Treasury, it does not provide counteroffers at this stage. One Treasury official stated that at this stage what is discussed is "approach, not numbers."

- *Post-Discovery Phase:* On subsequent calls, Treasury informed SIGTARP that it might engage in a more detailed discussion once the offer is somewhat closer to Treasury's determination of fair market value. Treasury commented that it discusses reactions to extenuating circumstances during these calls with the banks. For example, Treasury stated that, if a bank is tremendously off from the composite value, it lets the bank go back to the "drawing board" to figure out what the value is. In such cases, Treasury indicated that it would not provide as much detail regarding the inputs and outputs of the valuation because the institution is too far off. Once the bank is within a closer range, however, Treasury stated that it may provide valuation input enhancements to the bank that might eliminate the differences between Treasury's value and the bank's price. According to Treasury, it does not want to disadvantage the smaller banks, as they might not be equipped or staffed to arrive at as sophisticated a valuation as the bigger banks. However, Treasury commented that the level of information they provide is not based on whether the bank is big or small. According to Treasury the negotiating analysts provide more detailed information depending on how close an institution is to Treasury's fair market value estimate. According to Treasury, it does not make sense to give detailed information, including specific prices, to those that are far off.

- *Post-Warrant Committee*: Once Treasury officials receive feedback from the Warrant Committee, they might provide to the bank a fair market value with which the Warrant Committee would be comfortable. Treasury makes it clear that these suggestions are not a commitment to accept that price.

- *Assistant Secretary Conversations:* The Assistant Secretary told SIGTARP that sometimes when he is deciding whether to accept or reject an offer, financial institutions call him to "feel" him out. The Assistant Secretary told SIGTARP that he does not negotiate on these calls, but rather just listens to the pitch made by the banks and conveys Treasury's position.[18] The Assistant Secretary indicated that Treasury's policy was not to provide specific numbers to institutions, on the theory that the banks could bid more than Treasury's composite value.

None of the conversations between Treasury officials and the banks are documented by Treasury. Without such documentation, SIGTARP could not further determine the extent to which institutions were treated consistently and objectively during these discussions. Descriptions provided to SIGTARP by eight of the banks that engaged in negotiations confirmed that Treasury was willing to provide detailed information about its estimates to certain banks, but unwilling to share similar details with others. Unfortunately, because Treasury does not document these negotiations with financial institutions and because there are no established guidelines or criteria for the level of information shared with each institution, it is impossible to determine the justification for the differences in the quality of information shared with these banks. The following examples illustrate the varying levels of detail provided to different banks:

[18] However, as discussed in more detail below, according to a senior official of Morgan Stanley, the Assistant Secretary called him to communicate that Treasury was not going to accept Morgan Stanley's offer of $900 million. The official told SIGTARP that a $950 million figure was discussed during that call; although the official could not recall who suggested that figure, contemporaneous documentation indicates that the official understood from that call that Treasury was prepared to accept $950 million.

- **Old National Bancorp:** On April 15, 2009, Old National Bancorp ("Old National") submitted its first bid of $558,862, which Treasury subsequently rejected. Old National officials told SIGTARP that, during the subsequent negotiation process, Treasury's negotiating analyst stated that Treasury estimated a fair market value of around $1.3 million. Bank officials noted that the conversations with the analyst made it somewhat apparent that Treasury would not accept offers much below the $1.3 million range. Although Treasury's negotiating analyst did not say that Treasury would accept an offer of $1.3 million, the bank left the conversation with the impression that an offer at that amount would likely have been accepted. Treasury did not provide the inputs; it was up to the bank to find inputs to get to that number. The bank submitted a second bid of $1.2 million, which Treasury accepted. This price was 11 percent below Treasury's determination of fair market value of $1.35 million.
- **Sun Bancorp:** On April 21, 2009, Sun Bancorp ("Sun") submitted its initial bid of $1,049,496, which Treasury rejected. According to Sun officials, in subsequent telephone conversations, Treasury officials explained the valuation process and stated that their valuation range was around $3 million, a number arrived at by valuing the warrants at $4 million and applying a 25 percent liquidity discount. On May 19, 2009, Sun submitted a second bid of $2.1 million (a figure that was slightly higher than Treasury's composite value of $2.0 million), which was accepted.
- **SCBT Financial:** On June 3, 2009, SCBT Financial ("SCBT") submitted an initial bid of $694,060, which Treasury rejected. According to SCBT officials, in subsequent telephone conversations, Treasury told SCBT that the liquidity discount applied by the bank was too large and suggested that a smaller discount be applied. SCBT's second bid of $1.4 million, which matched Treasury's composite value, was accepted.
- **Somerset Hills Bancorp:** On June 4, 2009, Somerset Hills submitted an offer to Treasury for $192,752, which Treasury rejected. According to Somerset Hill's senior leadership, the bank's board of directors established a ceiling amount the bank could offer to Treasury without revisiting the board for approval. The first offer was on the lower end of the bank's range and under the ceiling. The bank told SIGTARP that, during the first phone call, Treasury shared its valuation approach and general process. For the second call, the bank executives stated that they clearly understood what Treasury's valuation range was. Treasury did not give the inputs to the model, but provided bank officials a dollar range approximate.[19] They compared Treasury's range to the range approved by the board of directors and commented that the ranges were very similar (within 10 percent of each other). The officials said that Treasury made clear that it couldn't accept anything over the phone; however, the officials had a clear sense of what the range was. With the new information, the bank submitted a second offer of $275,000, which was accepted by Treasury. Treasury's composite value was $275,000.
- **American Express:** On July 1, 2009, American Express submitted its first bid of $230 million, which Treasury rejected. American Express officials told SIGTARP that they were surprised at Treasury's "no counter offer" approach. The company called the first subsequent conversation a "discovery conversation," and noted that Treasury did not share the actual values of its pricing methods and was not very forthcoming on why there

[19] Somerset Hills' executives could not recall the exact dollar amount provided by Treasury during the negotiation.

were differences. Treasury shared that it was using the market quotes, financial modeling, and third-party estimates, but it was not willing to articulate how the three played out in its final valuation. Treasury did not share inputs or assumptions, methodologies, "not even a number to go by." Treasury suggested for American Express' second offer that the bank use the current stock price in its valuation because the stock price had risen so dramatically over the past 20-day period. American Express presented a second offer of $260 million, which again was rejected. At that point, Treasury simply provided an indication that the bank was getting closer. Finally, on July 28, 2009, the company offered to pay $340 million. Treasury accepted the offer, which was more than 21 percent above Treasury's composite value of $280 million.

- **Morgan Stanley:** On June 30, 2009, Morgan Stanley submitted its first bid of $500 million, which Treasury rejected. Morgan Stanley told SIGTARP that the first discussion thereafter centered on the construct and methodology of how Treasury was thinking of value. Treasury did not provide any numbers, guidance about their inputs, or a firm view about price—even though Treasury indicated that it would provide more guidance if the bank got closer to Treasury's price. On July 15, 2009, Morgan Stanley submitted its second bid of $500 million, which they viewed as being $80 million better than their original estimate of FMV because of the decline in their stock price from $29.10 to $27.88. Treasury rejected that offer as well. On July 31, 2009, Morgan Stanley raised its bid to $800 million, which Treasury again rejected. On August 4, 2009, Morgan Stanley submitted a revised offer of $900 million, which was approved by the Warrant Committee that day. After the Warrant Committee approved the $900 million bid, the Assistant Secretary asked the CPP team for the volatility and internal rate of return at $900 million, to which the team replied on that day. According to Treasury, Morgan Stanley's chief financial officer called the Assistant Secretary to inquire about the status of the $900 million bid. According to the Assistant Secretary, he told Morgan Stanley that he was requesting more information from the Warrant Committee and that Morgan Stanley needed to "sharpen their pencils" and get back to Treasury.

  According to Morgan Stanley, however, it was the Assistant Secretary who contacted Morgan Stanley's chief financial officer to inform the bank that Treasury was not going to accept the $900 million bid. Based on a follow up discussion, the Assistant Secretary stated to SIGTARP that it was conceivable that he had initiated the call to Morgan Stanley, but he could not remember. According to the chief financial officer, the Assistant Secretary communicated that Morgan Stanley would have to bid more to avert the auction process, the timing of which was uncertain at the time of Morgan Stanley's bid. He could not recall who suggested a $950 million figure, but a contemporaneous document appears to indicate at the very least that he understood from that call that Morgan Stanley would have to bid $950 million to avoid public auction.[20] The chief financial officer did recall that the Assistant Secretary made very clear that he wanted a significantly higher price, and that the $900 million bid was unacceptable. The chief financial officer, after gaining approval from the board of directors, called the Assistant Secretary back to inform him that Morgan Stanley was prepared to bid the previously discussed $950 million. After these discussions (which were not documented by

[20] In an e-mail from the day of the call, the chief financial officer wrote "Allison rang me 950 or go to auction. JJM,s [sic] decision, but frankly I would go to auction."

Treasury), Morgan Stanley repurchased its warrants for $950 million, which was nearly six percent higher than Treasury's composite value of $900 million.

- **Sterling Bank:** On June 5, 2009, Sterling Bank ("Sterling") submitted an initial bid of [REDACTED][21] to Treasury, which Treasury rejected. According to Sterling officials, in subsequent conversations, Treasury provided data that included value ranges for each of its methodologies (*i.e.*, market prices, third-party valuations, modeling and fundamental analysis) that resulted in a range of [REDACTED] to [REDACTED]. The bank told SIGTARP that Treasury suggested a bid of [REDACTED] and later indicated a willingness to accept even less, [REDACTED]. Sterling decided not to bid further, however, and Sterling's warrants will be sold at auction. Treasury's composite value was [REDACTED].
- **JP Morgan Chase:** On June 17, 2009, JP Morgan Chase ("JP Morgan") submitted a bid for its warrants of $825 million, which Treasury rejected. According to JP Morgan officials, in subsequent conversations, although Treasury provided general information on its valuation methodologies, Treasury provided very little input on how far JP Morgan's bid fell short and did not provide any benchmark figure. JP Morgan officials told SIGTARP that JP Morgan asked Treasury whether it would be willing to provide further guidance or clarification if it submitted a second bid that proved to be too low, to which Treasury responded that it was unlikely to provide additional information. JP Morgan told SIGTARP that it thought that the negotiation amounted to a game of "throwing darts in the dark," and that, having made what it believed was a full and fair offer, it was very difficult to negotiate a higher purchase price without any feedback from Treasury. Accordingly, JP Morgan decided to go to auction rather than submit a second bid. JP Morgan's warrants were sold at auction on December 10, 2009, for $950,318,243. Treasury's composite value was $1.0 billion.

Step 4: Appraisal Process

The CPP contract provides that if Treasury and the bank cannot agree on fair market value either may invoke an appraisal procedure, which is similar to arbitration. This process has not yet been used. Treasury and the institution would each choose an independent appraiser to calculate the value of the warrants. If they came to different determinations, the two appraisers would then see if they could agree upon a price for the warrants. If they are unable to agree after 30 days, then the first two appraisers select a third independent appraiser, and the average of the three appraisals is then determined. This price is binding upon Treasury if the institution agrees with the determination and wishes to proceed with the sale. If not, the process can be terminated by the financial institution.

A Treasury official stated that, although the appraisal process is an option, he did not think that any institution will use it because the bank would have to bear the costs of appraisers. One bank told SIGTARP that it did not invoke the appraisal procedure because it was too expensive, there

[21] Treasury has not yet auctioned Sterling Bank's warrants. To maximize taxpayer return at the auction, Treasury asked SIGTARP to redact the details of its negotiations with Sterling until after the auction is completed. SIGTARP will release an un-redacted version of this report upon completion of the Sterling auction.

is uncertainty because no other institution had gone through the process, the appraisal did not seem easy, and the length of the process added uncertainty. If the appraisal procedure is invoked, Treasury has 30 days to hire an appraiser. Treasury stated it will likely use one of its three asset managers as its selected appraiser.

Step 5: Treasury Sells the Warrants at Public Auction

In those instances in which a bank does not make a repurchase offer to Treasury or does make such an offer but cannot agree with Treasury on a negotiated price for its warrants, Treasury will seek to sell the warrants at auction. On June 26, 2009, Treasury announced its intention to use public auctions; on November 19, 2009, Treasury announced that it planned to auction warrants through registered public offerings using a modified Dutch auction. Each warrant offered in an auction gives the buyer the right to purchase one share of the bank's common stock at the strike price on the warrant. The modified Dutch auction allows investors to submit bids to the auction agent (Deutsche Bank), at specified increments above a minimum price per warrant that Treasury sets for each auction. The repaying institutions also have the option to bid in the auction, although institutions bidding on their own warrants have to submit their bid 30 minutes prior to the deadline for all other bidders. Deutsche Bank receives bids from the bidders and determines the final price of the warrants. It then allocates the warrants to the winning bidders. Treasury has the right to reject the results of the auction. For Treasury's auction process as described in the prospectus supplement of one of Treasury's warrant auctions, see Appendix H.

Warrants 101 – Dutch Auctions

For Treasury's warrant auctions (which have multiple bidders bidding for different quantities of the asset), the accepted price is set at the lowest bid of the group of high bidders whose collective bids fulfill the amount offered by Treasury. In an example, three investors place bids to own a portion of 100 shares offered by the issuer.

- Bidder A wants 50 shares at $4/share
- Bidder B wants 50 shares at $3/share
- Bidder C wants 50 shares at $2/share

The seller selects Bidder A and B as the two highest bidders, and their collective bids consume the 100 shares offered. The winning price is $3, which is what both bidders pay per share. Bidder C's bid is not filled.

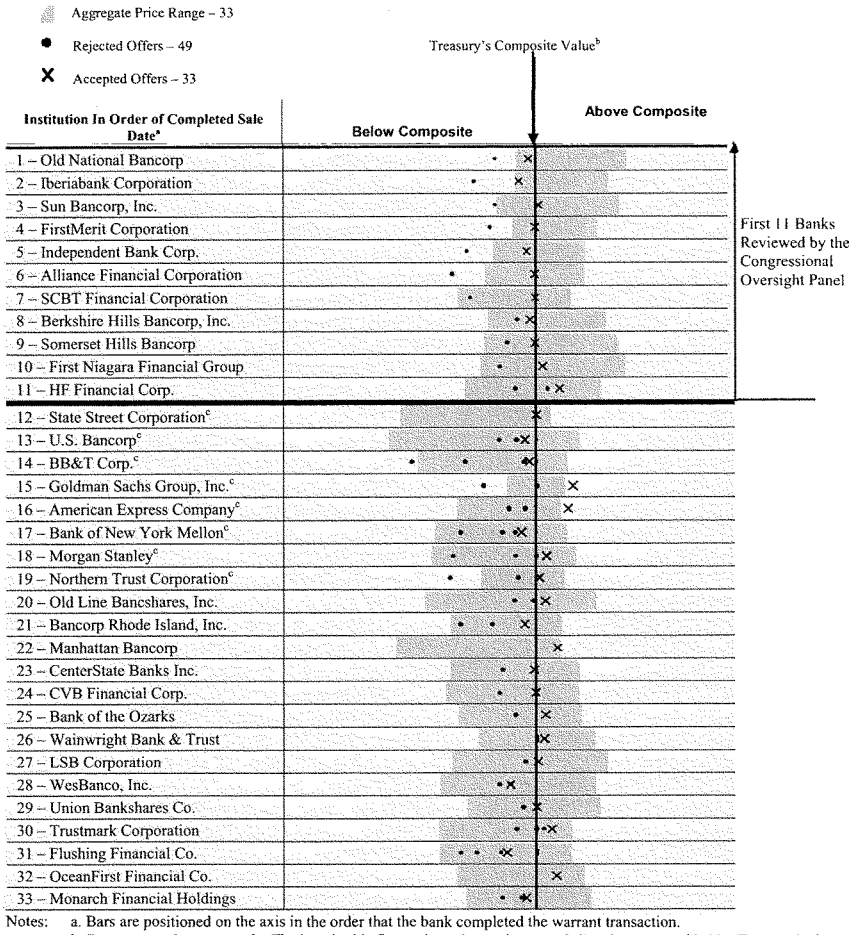
Bank-By-Bank Results of Treasury's CPP and TIP Warrant Sales Process

This section discusses the results of Treasury's implementation of its process to determine Fair Market Value. It also provides information about Treasury's implementation of the auction process.

SIGTARP analyzed the 33 warrants repurchase transactions through March 19, 2010, and collected preliminary observations on Treasury's seven auctions of warrants. As noted earlier, this analysis complements the prior work of the Congressional Oversight Panel.

Figure 6 illustrates the final negotiated price in comparison to Treasury analysts' estimate of value captured in the composite value. Treasury's decisions tend to center around its analyst's determination of composite value. In fact, of the 33 warrant repurchases through March 19, 2010, 20 of the final negotiated prices were at or above Treasury's composite value, and 9 of the final negotiated prices were just under the composite value (generally between 90-99 percent of composite value). The four remaining transactions, included the first two completed (during which time Treasury was operating under a governing statute that limited how long Treasury had to negotiate and before Treasury had its valuation methodology worked out) and two for warrants in small institutions that received less than $100 million in TARP funds (for which valuation is difficult because of less liquidity in the bank's stock).

Figure 6: Comparison of Treasury's Acceptance of Offers and Composite Value for Completed Warrant Transactions through March 19, 2010



Notes: a. Bars are positioned on the axis in the order that the bank completed the warrant transaction.
b. Bars are not drawn to scale. The bars in this figure show the total range of all estimates provided by Treasury's three independent pricing mechanisms. Morgan Stanley submitted the same dollar amount as its second offer; hence, the graphic above appears to present only one offer because the offers overlap.
c. These are larger institutions that received at $1 billion or more in TARP funds.

Source: SIGTARP analysis of Treasury data.

After examining 33 completed warrants repurchase transactions—both pre- and post- the Congressional Oversight Panel report—SIGTARP found that a number of factors differentiated the first 11 sales from subsequent sales.

- *Treasury did not apply a liquidity discount for banks that received more than $1 billion in TARP:* Treasury did not apply a liquidity discount for large institutions. For eight banks that received more than $1 billion in TARP (whose sales account for 99 percent of direct warrant repurchases), Treasury received 94 percent of the Panel's estimates. The Panel does not apply liquidity discounts to any of its valuations; however, as noted above, Treasury's policy is to apply liquidity discounts between 0 to 50 percent depending on the liquidity of the underlying stock and the possibility of greater participation in an auction. Treasury applied, on average, a 31 percent liquidity discount for the model valuations for the first 11 institutions, which received 66 percent of the Panel's estimates. If the liquidity discount is removed for Treasury's final prices for all banks,[22] the resulting prices are approximately 92 percent of the Panel's estimates.
- *For the first two warrant sales, Treasury was operating under a different legislative mandate and did not yet have its asset managers in place:* At the time of the first two warrant sales, Treasury believed that it was statutorily required to liquidate warrants expeditiously after a CPP participant repaid Treasury's CPP investment. This time pressure was compounded by the fact that Treasury had not yet finalized its process or had even hired its asset managers to assist in determining valuation.[23]
- *Treasury has refined its model assumptions over time:* As previously discussed, Treasury continued to refine its assumptions for its model over time, particularly assumptions on volatility. According to Treasury, the first three auctions that took place in December 2009 established a secondary market for 10-year options allowing Treasury to use market-based assumptions when it runs its financial models. In addition, the number of banks that repurchased the warrants from Treasury provided more market-based information to refine the inputs.
- *Treasury did not agree with the initial valuations of the third-party asset managers:* According to Treasury, for the first 11 warrants, "the CPP team often felt the volatility assumption used by the external asset managers was too high given the historical volatility of the institution. In addition, the CPP team also often assumed a higher illiquidity discount given the size of the institution and the limited trading volume of its stock." SIGTARP found that, after the initial warrant sales, the asset managers refined their models and became more relevant to Treasury's calculation of a composite value. Treasury's largest asset manager—AllianceBernstein—told SIGTARP that the recent auctions, as well as the number of valuations resulting from banks that repurchased the warrants from Treasury, provided more market-based information that the firm used to

[22] For the purpose of comparison to the Panel's analysis, SIGTARP removed the liquidity discount from the final prices; however, the liquidity discount generally is applied to the financial modeling outputs generated by Treasury.

[23] Instead, Treasury used Gifford Fong, which it acknowledged was not an experienced valuation firm and whose valuation model was found to be missing certain vital assumptions that Treasury thought were fundamental to the valuation.

refine the inputs, specifically regarding volatility. The firm has thus been able to recalibrate its calculations to reflect new market-based data.

- *Subsequent sales were to larger banks and Treasury rejected more bids before agreeing on a final price:* After the first 11 banks, Treasury rejected more offers before arriving at final prices than in the negotiations for the first 11 banks. Treasury rejected 65 percent of the offers from institutions that received more than $1 billion in TARP funds, compared to 52 percent of the first 11 banks, all of which received less than $200 million in capital investments. Treasury stated that, for smaller institutions, qualitative factors play more of a role in the decision making. For larger institutions, Treasury is less concerned about liquidity and the possibility that no bidders would participate in an auction, and, therefore, it was more willing to reject bids that were not close to Treasury's composite value.

Auction Results

As of March 19, 2010, Treasury had auctioned warrants for seven banks: four banks that did not submit a repurchase offer to Treasury (Bank of America, Texas Capital Bancshares, Inc., Signature Bank, and Washington Federal Inc.) and three banks that could not agree with Treasury on fair market value and revoked their offers (Capital One, JP Morgan Chase, and TCF Financial).

Table 3 deals with those firms that made offers to repurchase but could not agree with Treasury and provides these banks' initial offers, Treasury's composite value, and the auction results. Table 4 provides a summary of the auction results of the first seven banks' auctions compared to Treasury's minimum price and also shows the current price of the 10-year warrants that Treasury sold into the market.

Table 3: Results of Treasury's Warrant Auctions for Institutions that Revoked and/or rejected Offers through March 12, 2010 ($000s)

Institutions	Investment Date	TARP Investment	Date of Bank's Offer	Bank's Offer	Treasury Composite Value	Auction Date	Treasury Minimum Price	Proceeds From Auction
Capital One, Inc.	11/14/08	$3,555,199	6/30/09	$46,500	$110,000	12/3/09	$94,900	$148,731
JP Morgan Chase	10/28/08	$25,000,000	6/17/09	$825,539	$1,000,000	12/10/09	$707,200	$950,318
TCF Financial	11/14/08	$361,172	5/5/09	$3,200	$13,000	12/15/09	$4,800	$9,600
Totals				**$875,239**	**$1,123,000**		**$806,900**	**$1,108,649**

Source: SIGTARP analysis of Treasury data.

Table 4: Results of Treasury's Warrant Auctions Compared to Treasury's Minimum Price, as of April 13, 2010

Institutions	Program	Auction Date	Minimum Proceeds[b]	Auction Proceeds	Minimum Price / Warrant	Auction (i.e. Clearing) Price / Warrant	Warrants Trading Price (3/18/10)
Capital One, Inc.	CPP	12/3/09	$94,900	$148,731	$7.50	$11.75	$14.81
JP Morgan Chase	CPP	12/10/09	$707,200	$950,318	$8.00	$10.75	$14.22
TCF Financial	CPP	12/15/09	$4,800	$9,600	$1.50	$3.00	$4.42
Bank of America[a]	CPP	3/3/10	$182,689	$310,572	$1.50	$2.55	$2.98
Bank of America[a]	TIP	3/3/10	$1,052,630	$1,255,639	$7.00	$8.35	$8.88
Washington Federal	CPP	3/9/10	$8,500	$15,623	$5.00	$9.15	$7.32
Signature Bank	CPP	3/10/10	$9,500	$11,321	$16.00	$19.00	$18.98
Texas Capital	CPP	3/11/10	$4,900	$6,709	$6.50	$8.85	$8.90

Notes: a. Treasury conducted two auctions of Bank of America's warrants. One auction priced the warrants received under the CPP, and the other priced the warrants received under the Targeted Investment Program.
b. Minimum proceeds were calculated by multiplying the total number of warrants sold by the minimum price.
Source: SIGTARP review of Treasury data and NYSE closing prices. Bloomberg.

Treasury does not recalculate a composite value using the three pricing methods at or near the time that an auction was to commence, but instead uses a different, albeit related, procedure to establish a minimum price that Treasury would accept at auctions.[24] Deutsche Bank suggests the minimum price, and Treasury calculates a reserve price that is not shared with Deutsche Bank. If the final auction price is below reserve price, Treasury will retain the warrants.

[24] For the seven banks' warrant auctions, Treasury utilized modified "Dutch" auctions to dispose of the warrants. The public auctions were registered under the Securities Act of 1933. Only one bank's warrants were sold in each auction. With advice from its external asset managers and the auction agent, Treasury publicly disclosed a minimum bid and privately set a reserve price for each auction. Bidders were able to submit one or more independent bids at different price-quantity combinations at or above the set minimum price. The auction agent did not provide bidders with any information about the bids of other bidders or auction trends, or with advice regarding bidding strategies, in connection with the auction. The issuers of the warrants were able to bid for their warrants in the auctions. Bids were accepted by the auction agent from 8:00 a.m. to 6:30 p.m. on the day of the auction. The warrants were sold to all winning bids at the uniform price that cleared the auction. Deutsche Bank Securities Inc. was Treasury's auction agent for all the auctions. Deutsche Bank received fees equal to approximately 1.5 percent of the gross proceeds which is significantly below typical secondary equity offering fees that run around 3.5 percent to 4.5 percent depending on the size of the offering.

Treasury also solicits their asset manager to provide a minimum price for auctions. Treasury runs a financial model valuation to set the reserve price. Treasury has set higher reserve prices as the successive auctions went well. Starting with the Bank of America auction, Treasury was able to use actual market data made available by the first three auctions to run its financial model valuation.

Conclusions and Recommendations

EESA mandated that financial institutions receiving TARP assistance provide warrants to Treasury as a way to generate additional returns for taxpayers. For publicly traded companies, warrants give Treasury the right to purchase additional shares of common stock in the TARP beneficiary at a predetermined price for up to ten years after the TARP investment. As recipient institutions repay their TARP investments, Treasury sells the warrants, either directly to the recipient institution at a negotiated price or via public auction.

Because warrants of this duration are not typically traded on an open market, determining their value is not straightforward. Treasury determines a fair market value estimate for the warrants, called a "composite value," after referencing three different pricing methods: market quotes, financial modeling outputs and third-party estimates. Treasury uses the composite value as a reference when considering whether to accept recipients' bids for the warrants.

To its credit, Treasury has generally succeeded in negotiating prices from recipients for the warrants at or above its estimated composite value. Of the 33 public company warrant repurchases completed through March 19, 2010, 20 of the final negotiated prices were at or above Treasury's composite value, and 9 of the final negotiated prices were just under the composite value (generally between 90-99 percent of composite value). Of the 4 remaining transactions, 2 were the first two transactions completed (during which time Treasury was operating under a governing statute that limited how long Treasury had to negotiate and before Treasury had its valuation methodology worked out), and the other 2 were for warrants in small institutions that received less than $100 million in TARP funds (for which valuation is particularly difficult because of less liquidity in the bank's stock). Treasury has over time been more consistent in obtaining negotiated prices at or above its estimated composite value. Recent sales of warrants in larger, more widely traded firms have contributed to this trend, as has improved transparency in the market for long-term warrants overall. This is an important accomplishment that reflects a significant improvement in Treasury's ability to better realize returns for the taxpayer since the Congressional Oversight Panel's initial review of the warrant process in its July 2009 report. In total, for all warrant transactions (repurchases and auctions) through March 19, 2010, Treasury received $5.63 billion in proceeds from warrant sales.

This audit, however, has identified two broad areas in which Treasury's process for selling warrants directly to financial institutions is lacking in ways that impair transparency and have led to a lack of consistency in the process.

The first area of concern is that Treasury does not sufficiently document important parts of the process, impairing transparency and making a comprehensive review of the integrity of the decision-making process impossible. This documentation issue manifests itself in two important contexts. One, Treasury lacks detailed documentation supporting the decisions of the Warrant Committee, the internal Treasury committee that reviews TARP recipients' offers to repurchase their warrants and makes recommendations to the Assistant Secretary on whether to accept or reject them. Most of the meeting minutes from Warrant Committee sessions were extremely limited and included only the name of the institution, the institution's offer amount, the name of the analyst who presented Treasury's analysis of fair market value, the analyst's

recommendation on whether to accept or reject the offer, whether the offer was at or close to the analyst's composite value, and the final vote of the Warrant Committee members. Significantly, the minutes generally do not reflect the qualitative factors considered by the Warrant Committee members when making determinations whether to accept or reject a bank's offer, or their justifications or explanations for their decisions.

This lack of documentation contrasts significantly to that of Treasury's Investment Committee (part of the decision-making process for making TARP investments), even though both processes are designed to support a financial decision about a particular firm[25] and both committees discuss analysts' assessments of potential transactions. Investment Committee minutes, for example, capture details regarding the qualitative factors that the Investment Committee members consider in support of each decision. SIGTARP found far less documentation supporting the warrants sale decision-making process than was standardized and required for the comparable TARP investment process.

This deficiency significantly limits the ability to test the consistency of Treasury's decisions. As noted above, Treasury's decision making with respect to HF Financial and Somerset Hills appeared inconsistent when viewed in light of the meager information provided in the Warrant Committee minutes. Although Treasury officials were able to provide justifications for the different treatment of the two institutions in interviews in connection with this audit, this is not an adequate alternative to proper documentation in the first instance. Memories fade over time (as demonstrated in the case of Somerset Hills, in which a member of the Warrant Committee could not recall the precise liquidity discount percentage that he identified as being key to his decision), Treasury officials leave office, and although SIGTARP does not question the explanations provided by Treasury during the audit process, it is also impossible to know, without adequate documentation, if the explanations accurately and fully reflect the factors the members of the Warrant Committee actually considered at the time they made their decisions. The development of a full record on decisions that can mean the difference of tens of millions of dollars to taxpayers should not depend on whether an oversight body happens to examine a particular transaction (particularly, when, as here, hundreds of transactions will be occurring over a period of years), if the particular decision maker happens to still be available, or if that decision maker has a detailed recollection of the transaction. Even assuming that Treasury is making decisions in every case based upon reasonable and fair rationales, in the absence of documentation Treasury leaves itself vulnerable to criticism that its decisions are unwise, arbitrary or unfair.

Even more troubling, Treasury similarly does not document the substance of its conversations and negotiations with the recipient institutions. Treasury officials can interact directly with the recipient institution on several occasions during the warrant repurchase process. As discussed below, the transactions examined in detail in this audit suggest that the amount of information provided to recipient institutions concerning the price that Treasury is likely to accept, information that is only shared with some institutions, can have a significant impact on the return

[25] SIGTARP's August 6, 2009 audit, "Opportunities to Strengthen Controls to Avoid Undue External Influence over Capital Purchase Program Decision-Making," assessed the controls in place throughout Treasury's process to approve applications for CPP investments. SIGTARP made recommendations, which Treasury adopted, relating to documenting Investment Committee votes and all communications with third parties concerning the investment decision. That audit can be found at www.sigtarp.gov.

realized by taxpayers. Because Treasury does not make note of these conversations (or even keep a list of the institutions with which it shares such information), however, SIGTARP was only able to partially reconstruct, for the sample of eight institutions interviewed for this audit, the substance of the conversations and their import based on interviews conducted at times long after the fact. Again, memories fade and with the passage of time and the occurrence of intervening negotiations, different parties to a conversation may have different recollections of what occurred. When a brief telephone call can mean the difference of tens of millions of dollars, it is a basic and essential element of transparency and accountability that the substance of that call be documented contemporaneously.

The second significant deficiency is that Treasury does not have established guidelines or internal controls over how the negotiations proceed, and in particular as to how much information is shared with recipient institutions about Treasury's estimated fair market value and the price it will likely accept for the repurchase of the warrants. Descriptions provided to SIGTARP by several of the banks that engaged in negotiations with Treasury confirmed that Treasury was willing to provide detailed information about its estimates, including clear indications as to what prices it was prepared to sell the warrants back to certain banks, but was unwilling to share similar details with others. Moreover, although Treasury indicated that it generally would not provide an indication of its valuation until the institution's bid was close and the Assistant Secretary stated that Treasury generally engaged in a strategy not to provide specific valuation numbers because it would give away key negotiating leverage, the cases examined in detail in the audit simply do not bear this out. Indeed, in the negotiation reviewed by SIGTARP, the amount of information provided, the circumstances of when information would be provided, and the results of the negotiation were all over the lot:

- Old National Bancorp received information about Treasury's valuation range even though its bid was less than half of Treasury's composite value; it came back with a bid just under the composite, which was accepted.
- Sun Bancorp's initial bid was only about half of Treasury's composite value. Treasury responded with a specific number that was substantially higher than its composite value. Sun's next bid was just over the composite value and was accepted.
- SCBT Financial was told expressly that its initial bid used too large a liquidity discount; SCBT's subsequent bid, which utilized Treasury's suggested discount, was essentially at Treasury's composite value and was accepted.
- Following conversations with Treasury, Somerset Hills was clear what Treasury's valuation range was; their subsequent bid was right at Treasury's composite value and was accepted.
- Treasury gave essentially no information to American Express about its valuation even though the bank's second offer, $260 million, was just $20 million (7.1 percent) less than Treasury's composite value of $280 million and thus within the percentage range where other offers had been accepted. American Express's next bid, which was accepted, was $340 million, far in excess of Treasury's composite value.

- Treasury suggested a specific figure that it would accept from Sterling Bank, but Sterling found that figure to be too high, even after Treasury then offered an even lower figure. Its warrants will be auctioned.
- Treasury provided essentially no valuation guidance to JP Morgan Chase and suggested that it would not do so even if the bank submitted a further bid. As a result, JP Morgan declined to submit a subsequent bid and went to auction, at which Treasury received approximately $950 million, $50 million less than its composite value.

These differing approaches and results raise important questions: what rationale is there for such disparate treatment, and, if Treasury officials believe that not providing specific valuation figures generally leads to a better negotiating position, what was the contemporaneous justification each time that Treasury elected not to follow that strategy? There are potentially good reasons for treating institutions differently—owing to differences in the size of institutions and thus the liquidity of their stock and to the costs of an auction if negotiations fail, for example—but because Treasury does not document the negotiations with financial institutions and because there are no established guidelines or criteria for what information is shared or when it will be shared, it is impossible to determine with certainty after the fact whether the difference in the quantity and timing of the sharing of information is justified or consistently applied, or if those decisions resulted in a benefit or a detriment to the taxpayer.

The case of the negotiations with Morgan Stanley is illustrative of these deficiencies in Treasury's warrant disposition process.

- The Warrant Committee minutes do not describe what Treasury's reasoning was with regard to its consideration of Morgan Stanley's bid, or even what in fact occurred. The minutes reflect, without substantial explanation, that the Warrant Committee had approved Morgan Stanley's bid of $900 million; however, later documentation reflects, again without explanation, that the $900 million bid was not approved.
- Notwithstanding the fact that SIGTARP was told by the Assistant Secretary that he had not overruled any decisions of the Warrant Committee, in an interview, the Assistant Secretary explained that, after receiving a recommendation to accept Morgan Stanley's $900 million offer, rather than following that recommendation, he instead suggested that the Warrant Committee re-run its analysis with respect to Morgan Stanley because of an intervening increase in Morgan Stanley's stock price; that reason, however, was not documented.
- The critical telephone negotiation between the Assistant Secretary and Morgan Stanley officials during which Morgan Stanley's $900 million offer was rejected was not documented by Treasury, and the parties have significantly different recollections about that call. The Assistant Secretary initially said that Morgan Stanley called him, but the Morgan Stanley official told SIGTARP that it was the other way around. A contemporaneous document indicates that the Assistant Secretary initiated the call, and the Assistant Secretary later said that it is possible that he called Morgan Stanley, but that he just could not remember. The Assistant Secretary told SIGTARP that he does not negotiate on such calls but just listens to the recipients' pitch and/or conveys Treasury's position; but Morgan Stanley stated that the Assistant Secretary made it clear that

Treasury would not accept $900 million and that Morgan Stanley would have to bid substantially higher. Indeed, internal Morgan Stanley e-mail unambiguously states that the Morgan Stanley official understood from that call that Morgan Stanley would have to bid $950 million or face a public auction. The Assistant Secretary, however, told SIGTARP that he would not have told Morgan Stanley that they would have to bid at least $950 million because it would give away key leverage. He stated that, by not revealing Treasury's target price to the bidder, Treasury is more likely to receive a bid exceeding its valuation.

- Morgan Stanley ultimately bid $950 million, $50 million over Treasury's composite value and $50 million more than the Warrant Committee had initially approved.

Although the Assistant Secretary should be commended for exercising the initiative to intercede by overruling the Warrant Committee's initial recommendation and thus obtaining $50 million more for taxpayers from Morgan Stanley, this example shows how Treasury's lack of documentation at critical points in the process and the lack of overarching guidelines can lead to difficult questions. What were the specific factors that were contemporaneously considered by the Warrant Committee that led to its initial approval of Morgan Stanley's $900 million bid, and without documentation of those factors, how can Treasury determine what changes, if any, are needed in that deliberative process? What actually occurred on the critical call between the Assistant Secretary and Morgan Stanley? Could similar tactics by Treasury have resulted in similarly favorable prices for taxpayers from other large institutions? Why was Morgan Stanley apparently provided a price at which Morgan Stanley believed that the warrant transaction would close, while others, including American Express and JP Morgan Chase, were not? These difficult questions simply cannot be answered definitively after the fact because Treasury has not done an adequate job thus far in documenting its decision making and its negotiation, or in developing guidelines as to how much information is shared with banks during the negotiation process.

Unless Treasury addresses these deficiencies, it risks subjecting itself once again, fairly or unfairly, to criticism from third parties that through TARP it is favoring some institutions over others—picking winners and losers—irrespective of whether in fact it had legitimate reasons to take the negotiating positions that it did. Although SIGTARP acknowledges that every case is different and that Treasury needs to have some flexibility to address each particular situation, without some objective guidelines and, importantly, internal controls to ensure that such guidelines are followed, the risks and costs of arbitrary results and unjustifiable disparate treatment are just too great. The absence of documentation and uniform guidelines for negotiation may make it difficult for Treasury to defend itself convincingly against charges of arbitrariness or favoritism. Only through adoption of the recommendations below can Treasury minimize this reputational risk.

Recommendations

To address these deficiencies, SIGTARP recommends that:

1. Treasury should ensure that more detail is captured by the Warrant Committee meeting minutes. At a minimum, the minutes should include the members' qualitative considerations regarding the reasons bids were accepted or rejected within fair market value ranges.
2. Treasury should document in detail the substance of all communications with recipients concerning warrant repurchases.
3. Treasury should develop and follow guidelines and internal controls concerning how negotiations will be pursued, including the degree and nature of information to be shared with repurchasing institutions concerning Treasury's valuation of the warrants.

Management Comments and Audit Response

SIGTARP received an official written response to this audit report from Treasury, a copy of which is included in Appendix K. In that response, although Treasury stated that it did not agree with all of the report's findings, Treasury noted its view that the audit report should be helpful in explaining this complicated subject to the public. With respect to the audit report's recommendations, Treasury agreed to review their procedures to ensure that there is sufficient consistency in their process, but did not specifically respond to our recommendations; instead, Treasury indicated that it would respond more fully to the report's findings and provide a detailed description of the actions it intends to take with regard to the concerns raised in the report within 30 days. SIGTARP will provide an update on Treasury's follow-up response in its next Quarterly Report to Congress.

Appendix A—Scope and Methodology

We performed the audit under the authority of Public Law 110-343, as amended, which also incorporates the duties and responsibilities of inspectors general under the Inspector General Act of 1978, as amended. The audit's specific objectives were to determine the process and procedures Treasury has established to ensure that the Government receives fair market value for the warrants and to determine the extent to which Treasury follows a clear, consistent, and objective process in reaching decisions where differing valuations of warrants existed.

We performed work at the Department of the Treasury's Office of Financial Stability in Washington, DC. We also performed field interviews in New York, New Jersey, and California. The scope of this audit covered 33 initiated and completed warrant transactions from May 8, 2009, through March 19, 2010, between the CPP recipient and Treasury. We also reviewed auctions of warrants for stock in seven TARP recipients that did not repurchase the warrants directly from Treasury.

To determine the process and procedures Treasury has established to ensure that the Government receives fair market value for the warrants, we reviewed available Treasury guidance on its warrant negotiation and auction process, Treasury's internal controls documentation, the contracts signed by Treasury and the banks upon receipt of funds, and other relevant Treasury publications on its disposition process. In addition, we reviewed the Emergency Economic Stabilization Act of 2008, the American Recovery and Reinvestment Act of 2009, and Helping Families Save Their Homes Act of 2009. We interviewed legal, compliance, policy, and CPP team officials to understand Treasury's process. We also interviewed Secretary Geithner and the Assistant Secretary Allison to determine their roles in warrant disposition. We also judgmentally sampled eight institutions that had participated in Treasury's warrant disposition process to gain an understanding of the banks' perspective on Treasury's procedures. We also consulted academic experts and industry participants on general valuation techniques. We also observed two auctions to determine the steps involved in selling warrants through the auction mechanism.

To determine the extent to which Treasury follows a clear, consistent, and objective process in reaching decisions where differing valuations of warrants existed, we reviewed Treasury's warrant repurchase files for completed warrant transactions and reviewed decision-making documentation for each transaction. We reviewed Warrant Committee meeting minutes and evidence of approval, which included email exchanges between CPP officials and the Assistant Secretary. We interviewed the CPP warrant valuation team to understand the rationale for Treasury's valuation methodologies and fair market value assessment. We also interviewed Warrant Committee members and the Assistant Secretary to understand the factors considered during decision making.

This audit was performed in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We completed our review from June 2009 to April 2010. We believe that the evidence obtained during this period of review provides a reasonable basis for our findings and conclusions based on audit objectives.

Limitations on Data

Some of the decision makers involved at the beginning of TARP and the CPP were no longer at Treasury at the time of SIGTARP's review. Moreover, SIGTARP was unable to determine all of the decision-making factors when Treasury assessed each CPP institution's warrant offer because Treasury did not document all of the qualitative factors it considered during the recommendation, negotiation, and approval process.

Use of Computer-processed Data

To perform this audit, we used data provided by Treasury's valuation models. To assess the extent to which these models generate reliable outputs, we reviewed documentation from Ernst and Young, the independent firm contracted by Treasury to validate the models' results. We reviewed the validation report that the firm submitted to Treasury and found nothing material that would impede the use of the models on the basis of model reliability.

Internal Controls

As part of the overall evaluation of the CPP warrant valuation and disposition process, we examined internal controls related to the submission, valuation, recommendation, and approval of financial institutions' offers for warrant transfer. We also conducted an evaluation of documentation procedures regarding various decision-making points throughout the process and examined internal controls as they relate to policies and procedures in place to ensure consistency throughout the valuation and decision-making process.

Prior Coverage

Congressional Oversight Panel, "July Oversight Report: TARP Repayments, Including the Repurchase of Stock Warrants," July 10, 2009.

Congressional Oversight Panel, "January Oversight Report: Exiting TARP and Unwinding Its Impact on the Financial Markets," January 13, 2010. This report includes an update on the Panel's July 2009 report.

Congressional Oversight Panel, "Commercial Real Estate Losses and the Risk to Financial Stability," February 11, 2010. This report includes an update on the Panel's July 2009 report.

Government Accountability Office, Report GAO-09-658, "Troubled Asset Relief Program: June 2009 Status of Efforts to Address Transparency and Accountability Issues," June 2009.

Government Accountability Office, Report GAO-09-889, "Troubled Asset Relief Program: Status of Participants' Dividend Payments and Repurchase of Preferred Stock and Warrants," July 2009.

United States Department of the Treasury, Office of Financial Stability, "Warrant Disposition Report," January 20, 2010.

Appendix B—Largest Positions in Warrants Held by Treasury, By Program, as of March 19, 2010

Participant	Transaction Date	Current Number of Warrants Outstanding	Current Strike Price	Stock Price as of 3/31/2010	In or Out of the Money	Amount "In the Money" or "Out of the Money" as of 3/31/2010
Capital Purchase Program:						
Citigroup Inc.	10/28/2008	210,084,034	$17.85	$4.05	Out	$(13.80)
Wells Fargo & Company	10/28/2008	110,261,688	$34.01	$31.12	Out	$(2.89)
Systemically Significant Failing Institutions Program/AIG Investment Program:						
AIG[a]	11/25/2008	2,689,938	$50.00	$34.14	Out	$(15.86)
AIG[a]	4/17/2009	150	$0.00	$34.14	In	$34.14
Targeted Investment Program:						
Citigroup Inc.	12/31/2008	188,501,414	$10.61	$4.05	Out	$(6.56)
Asset Guarantee Program:						
Citigroup Inc.	1/16/2009	66,531,728	$10.61	$4.05	Out	$(6.56)

Notes: Numbers affected by rounding.

[a] All warrant and stock data for AIG are based on the 6/30/2009 reverse stock split of 1 for 20.

Sources: Treasury, Transactions Report, 1/4/2010; Treasury, responses to SIGTARP data call, 1/5/2010 and 10/7/2009; Capital IQ, Inc. (a division of Standard & Poor's), www.capitaliq.com. Wall Street Journal.

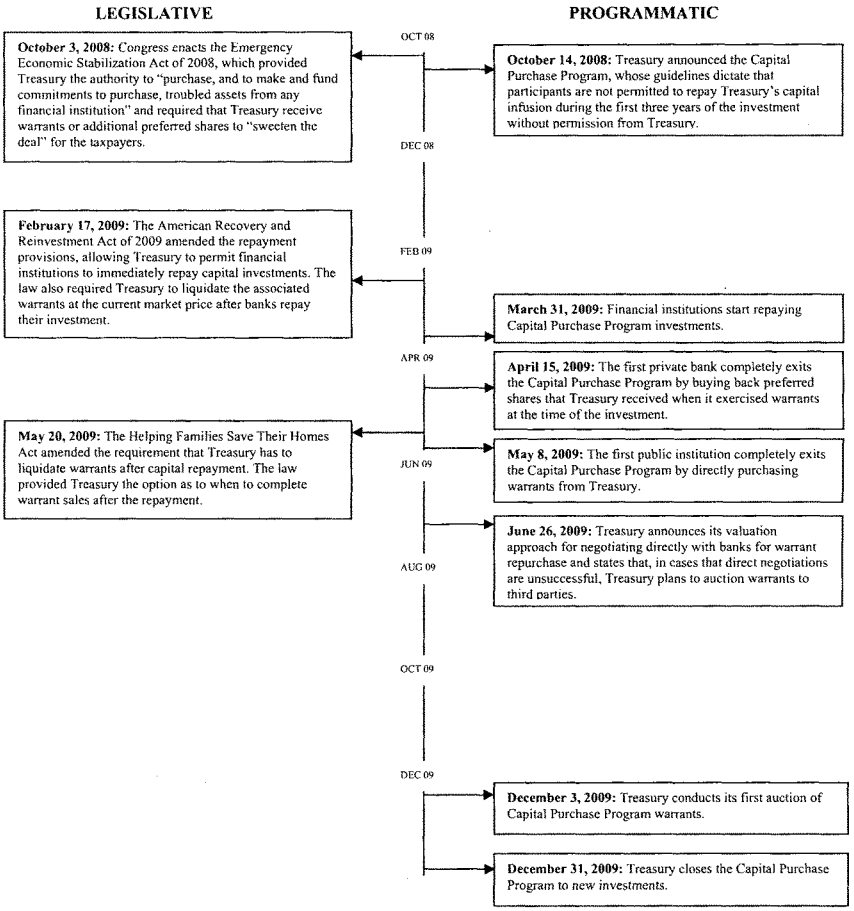
Appendix C—Investments in 707 CPP Banks

Treasury's Investments, as of March 19, 2010	Number of Institutions[a]
Preferred Stock with Exercised Warrants	353
Preferred Stock with Warrants	277
Subordinated Debentures with Exercised Warrants	49
Preferred Stock	19
Subordinated Debentures	4
Trust Preferred Securities with Warrants	2
Common Stock with Warrants	1
Contingent Value Rights	1
Mandatory Convertible Stock with Warrants	1
TOTAL	**707**

Note: [a]Thirty-one institutions received more than one CPP investment. For purposes of this table, these institutions are only counted once.

Source: Treasury Transaction Report, 3/19/2010.

Appendix D—CPP Warrant Disposition Timeline



Sources: Emergency Economic Stabilization Act of 2008, American Recovery and Reinvestment Act of 2009, Helping Families Save Their Homes Act, Securities Purchase Agreement, and Treasury press releases.

Appendix E—Treasury's Warrant Process Description (Excerpt)

Treasury Announces Warrant Repurchase and Disposition Process for the Capital Purchase Program
June 26, 2009

Today, Treasury is announcing its policy with respect to the disposition of the warrants received in connection with investments made under the Capital Purchase Program (CPP). In the case of investments in publicly-traded institutions, Treasury received warrants to purchase common shares which have not been exercised. (In the case of institutions that are not publicly-traded, Treasury received warrants to purchase preferred stock or debt and these warrants were exercised immediately upon closing the initial investment so they are no longer outstanding.)

Repurchasing Warrants under the CPP Contract

When a publicly-traded institution repays Treasury's CPP investment, the original contract under the CPP provides the bank a right to repurchase the warrants at fair market value via an independent valuation process. The relevant sections of the transaction documentation describing this process can be found in the Warrants FAQ on www.financialstability.gov.

The warrant repurchase process works as follows:

> **Step 1:** Within 15 days of repayment, a bank wishing to repurchase the warrants should submit a determination of fair market value to Treasury.
> **Step 2:** Treasury will ensure that taxpayers' interests are protected by conducting a process (described below) to determine whether or not to accept the bank's initial determination. Under the contract, Treasury has 10 days to respond to the initial determination.
> **Step 3:** If Treasury objects to the bank's determination and cannot reach agreement with the bank regarding fair market value, the transaction documents outline an appraisal procedure by which the two parties will reach a final price. In this appraisal procedure, the bank and Treasury will each select an independent appraiser. These independent appraisers will conduct their own valuations and attempt to agree upon the fair market value.
> **Step 4:** If these appraisers fail to agree, a third appraiser is hired, and subject to some limitations, a composite valuation of the three appraisals is used to establish the fair market value.

In order to protect taxpayers in this process, Treasury has developed a robust set of procedures for evaluating repurchase offers in Step 2 above. Treasury's determination of value is based on three categories of input:

1. **Market Prices**

When available, observable market prices are used. However, Treasury has warrants that are not listed on a securities exchange nor otherwise traded. These warrants do vary from typical listed warrants, mostly due to their long term (10 years). Therefore, the only observable market prices are for securities that have similar characteristics. The prices of these comparable securities can be used to assess the fair market value of the warrants held by Treasury.

- Comparable securities for the warrants held by Treasury include: traded warrants, traded options, and common equity issued by the institution as well as similar securities of peer institutions. Generally speaking, the largest institutions in the CPP have a broad array of comparable securities with observable market prices. Mid-sized institutions have fewer comparable securities and those securities may trade somewhat infrequently. Many of the smallest CPP participants have no meaningful comparable securities with observable market prices, so Treasury will rely on other valuation methods.

- Treasury will also obtain quotations for the warrants from 5 - 10 relevant market participants that may include investment banks regularly trading options or other securities with embedded options (e.g. convertible bonds) or asset management firms focusing on the financial sector.

2. **Financial Modeling**

Treasury will also use a set of well-known financial models to assess the fair value of the warrants. These models will include, but will not be limited to, binomial and Black-Scholes option-pricing models, and are widely used in financial markets to value options and warrants.

- These models depend on known inputs (the expiration date, interest rates, and the current stock price) and on assumptions about the future volatility and dividends of the underlying common stock.

- Assumptions about future volatility will be based on both the historical volatility and the option-implied volatility for a given stock and, where necessary, adjustments will be made for the expected mean-reversion of volatility over time. Treasury uses the average 60-day trailing volatility for the last ten years to determine a stock's historical volatility. Some larger publicly-traded institutions have existing short-dated options and longer-dated options (with maturities of up to two years) that provide data on option- implied volatility, so we use these also.

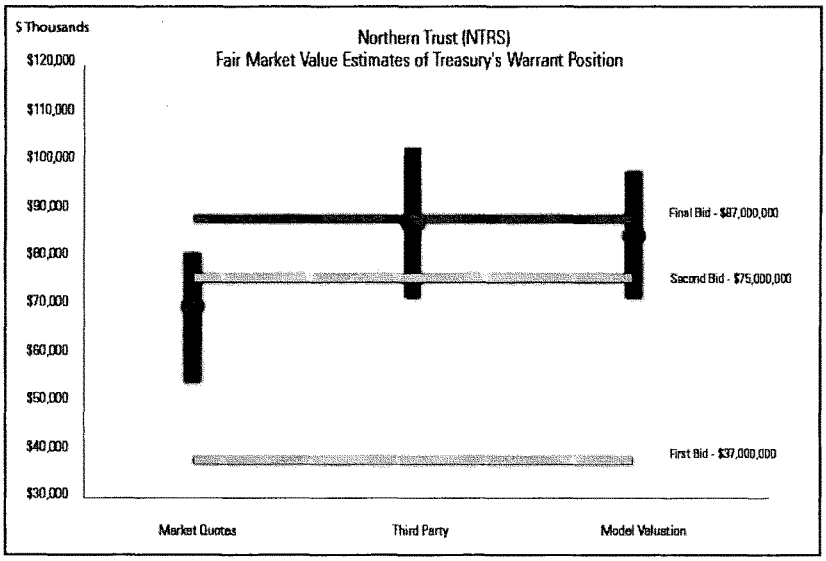
Transparency

Treasury publishes information on all CPP transactions, including investments, repayments and warrant repurchases, in the TARP Transactions Reports within 2 business days of closing. All Transaction reports are available on our website at www.financialstability.gov.

Further, Treasury will begin publishing additional information on each warrant that is repurchased, including a bank's initial and subsequent determinations of fair market value, if applicable. Following the completion of each repurchase, Treasury will also publish the independent valuation inputs used to assess the bank's determination of fair market value. All of this information will be available www.financialstability.gov.

Appendix F—Example of Treasury's Warrant Valuation Analysis

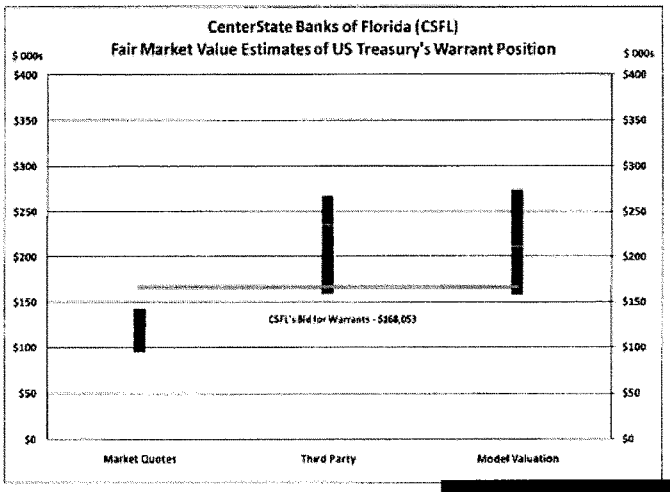
This appendix is an excerpt from Treasury's January 20, 2010 Warrant Disposition Report. The figure below "demonstrates the three elements of Treasury's warrant valuation analysis together with an institution's bid for the warrants, using Northern Trust Corporation as an example. The market quotes are presented as a range from the low to the high estimate of value provided by market participants (black bar) as well as the average of all the market indications collected (red point). The third party estimate of value (red point) is presented along with a reasonable range (black bar) that is also prepared by the third party. Treasury's estimate of value (red point) based on its internal model is presented along with a reasonable range (black bar). The ranges of estimates presented below show the final estimates utilized by Treasury officials to analyze the bank's final bid."



Appendix G—Analyst's Fair Market Value Determination (Example)

CenterState Banks of Florida (CSFL)
Estimate of Fair Market Value for CSFL Warrant

CenterState Banks of Florida (CSFL) has offered to pay $168,053 for the warrants held by the US Treasury which entitles the holder of the warrant to purchase 125,413 shares of CSFL at a strike price of $16.67 per share. The warrant expires on November 21, 2018.



[redacted]

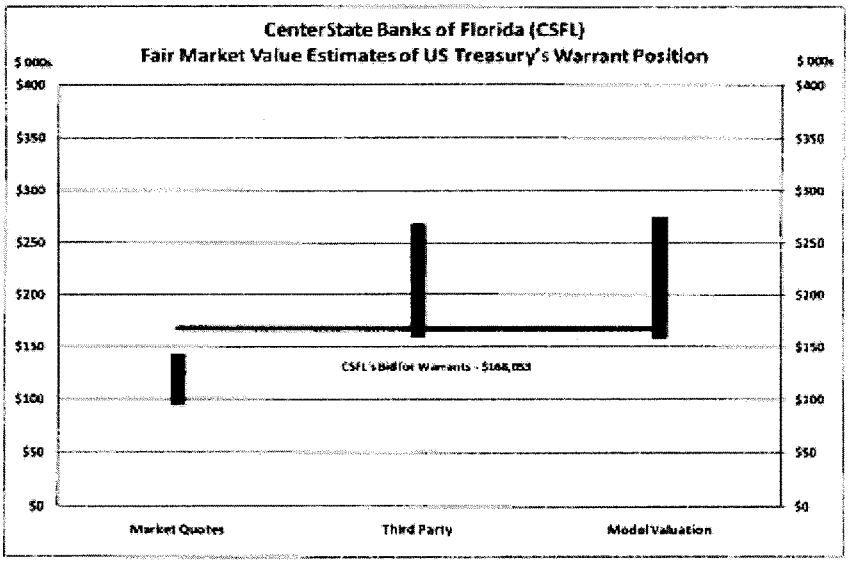
Valuation Estimates for Warrant

($thousands)	Low	High	Estimate	Details
Market Quotes	$94	$143	$125	Three market quotes ranging from $94 thousand to $143 thousand with an average of $125 thousand Average stock price used in valuation was $7.64
Third Party	[redacted]			Binomial option model adjusted for American style options Assumes 30 day trading average stock price of $7.63, volatility of [redacted], dividend yield of [redacted] Estimate variance based on volatility range of [redacted] to [redacted] and dividend yield range of [redacted] to [redacted]
Model Valuation	$158	$275	$232	Binomial option model adjusted for American style options Assumes stock price of $7.72, volatility of 40.0%, dividend yield plus borrow cost of 1.30% Estimate variance based on volatility range of 35% to 49% and dividend yield range of 0.8% to 1.8%

Date: October 16, 2009
Subject: Fair Market Value Determination for CSFL Warrants
To: CPP Warrant Committee
From: [redacted]

The U.S. Department of the Treasury invested $27,875,000 in CenterState Banks of Florida, Inc. (CSFL, UST 23) on November 21, 2008. The investor received 27,850 preferred shares with a liquidation preference of $1,000 each and a warrant to purchase 250,825 shares at a $16.67 per share strike price. In the third quarter of 2009, CSFL completed a public offering of its Common Stock in an amount in excess of the value of preferred shares issued to Treasury, which meets the requirements for a Qualified Equity Offering within the meaning of the Purchase Agreement and the Warrant. Upon completion of the public offering, the number of shares issuable upon exercise of the Warrant was reduced to 125,413. On September 30, 2009, the Company redeemed at par all shares of preferred stock issued to the Treasury. On October 9, 2009, CSFL's Board of Directors presented the Treasury with a resolution indicating the Company's desire to repurchase the outstanding warrant associated with the Treasury's investment and their determination of Fair Market Value for those warrant. The Board determined the Fair Market Value of the warrant to be $168,053 ($1.34 per share). If the Treasury does not agree with the Board's determination of Fair Market Value, it must object in writing by **Monday, October 19, 2009**.

The CPP Asset Management valuation process has estimated the current Fair Market Value of the CSFL warrant held by the Treasury to be approximately **$215 thousand** with a valuation range of $160 thousand to $275 thousand.

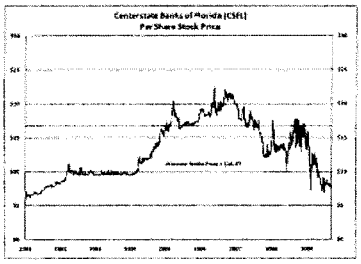


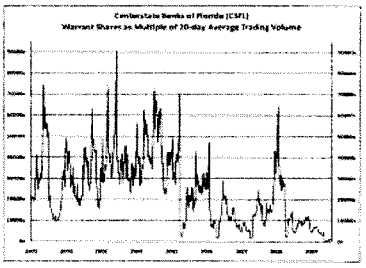
Market Prices

CPP Asset Management sought out market indications for the CSFL warrant held by Treasury. The market participants indicated prices at which they would be willing to purchase the warrant and provided background information on assumptions and parameters used when valuing the warrant. Participants provided reference information including common stock prices, volatility, dividend yields and other inputs. CPP Asset Management could find no comparable securities with observable market prices. Market bids provide an average estimated value of **$124,995.**

Market Analysis of Warrant Valuation

	Gross Bid ($ thousands)	Bid Per Share	Reference Stock Price
HF	$143	$1.14	$7.67
IB	$138	$1.10	$7.57
IB	$94	$0.75	$7.67
Avg.	**$125**	**$1.00**	**$7.64**





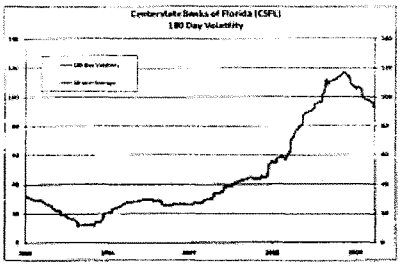
Financial Modeling

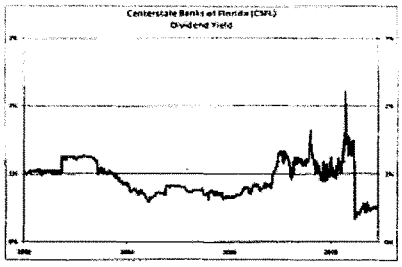
CPP Asset Management estimated the value of Treasury's CSFL warrant using a set of financial models. These models, which include the Black-Scholes and binomial option pricing models, depend on known parameters (such as the warrant's strike price, the Company's stock price, and US Treasury rates) and assumptions for unknown parameters (such as future stock volatility and dividend yield). The stock price used for valuation was the 20-day average of closing stock prices ending October 15, 2009. This 20-day average is $7.77 (CSFL's current stock price as of October 15, 2009 is $7.37). To reach reasonable assumptions about future stock volatility and dividend yield, CPP Asset Management examined CSFL's implied and historical volatility levels and volatility levels of comparable banks. The recent unusually high volatility and the long-term average volatility for CSFL were also considered. For a dividend yield assumption, historical dividend amounts and dividends yields were examined for trends and long-term averages. A yield of 1.00%, slightly higher than historical experience, was used in the analysis. A marginal borrow cost of 0.30% was included, as indicated by market participants. Using the current 20-day trailing average stock price and assuming long-term annual volatility of 40.0%, an average dividend yield + borrow cost of 1.30%, and an illiquidity discount of 20.0%, the CSFL warrants have an estimated value of **$212,000**. Using the current stock price of $7.37, the model estimates a value of $192 thousand.

Financial Model Analysis of Warrant Valuation

Estimate ($ thousands)

		Annual Stock Volatility		
		35.0%	40.0%	45.0%
Dividend Yield	0.80%	$184	$231	$275
	1.30%	$170	$212	$257
	1.80%	$158	$197	$239





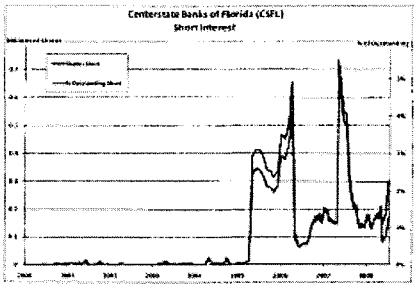
Third Party Analysis

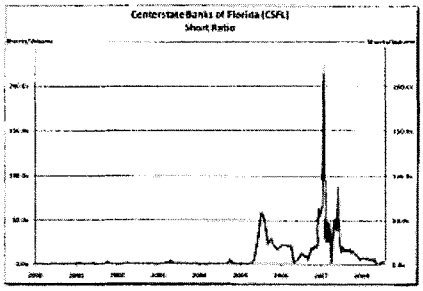
Piedmont Investment Advisors, the CPP external asset manager that covers CSFL, provided a third party model valuation of the CSFL warrant using a binomial model for American style options. The final valuation they provided utilized a dividend yield of 0.90%, an annualized price volatility of 57.59%, and a liquidity discount of 49.10%. Using the current stock price of $7.57 as of October 13, 2009, Piedmont estimates a value of $221,034. Using the assumed dividend yield, annualized price volatility, and illiquidity discount with the 20-day trailing average stock price of $7.81, Piedmont estimated the value of the CSFL warrant to be **$236,020**.

Piedmont Estimate of Warrant Valuation

Estimate ($ thousands)

		Annual Stock Volatility		
		50.00%	57.59%	60.00%
Dividend Yield	0.50%	$194	$251	$268
	0.90%	$179	$236	$253
	1.50%	$159	$214	$232





Appendix H—Supplemental Prospectus

Auction Process

The following describes the auction process used to determine the public offering price of the warrants. That process differs from methods traditionally used in other underwritten public offerings. The selling security holder and the underwriter will determine the public offering price and the allocation of the warrants in this offering by an auction process conducted by the sole book-running manager, Deutsche Bank Securities, in its capacity as the "auction agent." This auction process will involve a modified "Dutch auction" mechanism in which the auction agent (working with a number of other brokers) will receive and accept bids from bidders at either the minimum bid price of $1.50 or at price increments of $0.05 in excess of the minimum bid price. We may (but are not required to) bid in the auction for some or all of the warrants. After the auction process closes and those bids become irrevocable (which will occur automatically at the submission deadline to the extent such bids have not been modified or withdrawn at that time), the auction agent will determine the clearing price for the sale of the warrants offered hereby and, if the selling security holder chooses to proceed with the offering, the underwriter will allocate warrants to the winning bidders. The auction agent has reserved the right to round allocations to eliminate odd-lots. The clearing price for the warrants may bear little or no relationship to the price that would be established using traditional valuation methods. You should carefully consider the risks described under "Risk Factors—Risks Related to the Auction Process" beginning on page S-7.

Eligibility and Account Status

In order to participate in the auction process, bidders must have an account with, and submit bids to purchase warrants through, either the auction agent or one of the other brokers that is a member of the broker network (collectively, the "network brokers") established in connection with the auction process. Brokers that are not network brokers will need to submit their bids, either for their own account or on behalf of their customers, through the auction agent or a network broker. If you wish to bid in the auction and do not have an account with the auction agent or a network broker, you will either need to establish such an account prior to bidding in the auction (which may be difficult to do before the submission deadline) or contact your existing broker and request that it submit a bid through the auction agent or a network broker. Network brokers and other brokers will have deadlines relating to the auction that are earlier than those imposed by the auction agent, as described below under "—The Auction

Because the warrants are complex financial instruments for which there is no established trading market, the auction agent, each network broker and any other broker that submits bids through the auction agent or any network broker will be required to establish and enforce client suitability standards, including eligibility, account status and size, to evaluate whether an investment in the warrants is appropriate for any particular investor. Each of them will individually apply its own standards in making that determination, but in each case those standards will be implemented in accordance with the applicable requirements and guidelines of FINRA. If you do not meet the relevant suitability requirements of the auction agent or another

broker, you will not be able to bid in the auction. Accounts at the auction agent or any other broker, including broker accounts, are also subject to the customary rules of those institutions. You should contact your brokerage firm to better understand how you may submit bids in the

The auction agent or network brokers may require bidders (including any brokers that may be bidding on behalf of their customers) to submit additional information, such as tax identification numbers, a valid e-mail address and other contact information, and other information that may be required to establish or maintain an account.

The auction agent and the network brokers, upon request, will provide certain information to you in connection with the offering, including this prospectus supplement and the accompanying prospectus and forms used by such brokers, if any, to submit bids. Additionally, you should understand that:

- before submitting a bid in the auction, you should read this prospectus supplement, including all the risk factors;
- the minimum bid price was agreed by the auction agent and Treasury, and we did not participate in that determination and therefore cannot provide any information regarding the factors that Treasury and Deutsche Bank Securities considered in determining the minimum bid price;
- if bids are received for 100% or more of the offered warrants, the public offering price will be set at the auction clearing price (unless the selling security holder decides, in its sole discretion, not to sell any warrants in the offering after the clearing price is determined);
- if bids are received for half or more, but less than all, of the offered warrants, then the selling security holder may (but is not required to) sell, at the minimum bid price in the auction (which will be deemed the clearing price) as many warrants as it chooses to sell up to the number of bids received in the auction, so long as at least half of the offered warrants are sold, and that in such a case if the selling security holder chooses to sell fewer warrants than the number of warrants for which bids were received, then all bids will experience equal pro-rata allocation;
- if bids are received for less than half of the offered warrants, the selling security holder will not sell any warrants in this offering;
- if there is little or no demand for the warrants at or above the clearing price once trading begins, the price of the warrants will decline;
- we will be allowed (but are not required) to bid in the auction and, if we do participate, will participate on the same basis as all other bidders without receiving preferential treatment of any kind;
- the liquidity of any market for the warrants may be affected by the number of warrants that the selling security holder elects to sell in this offering and the number of warrants, if any, that we purchase in the auction process, and the price of the warrants may decline if the warrants are illiquid;

- the auction agent has the right to reconfirm any bid at its discretion by contacting the purported bidder directly and to impose size limits on the aggregate size of bids that it chooses to accept from any bidder, including network brokers (although the auction agent is under no obligation to reconfirm bids for any reason). If you are requested to reconfirm a bid and fail to do so in a timely manner, the auction agent may deem your bid to have been withdrawn, but alternatively may in its discretion choose to accept any such bid even it has not been reconfirmed;
- the auction agent may reject any bid that it determines, in its discretion, has a potentially manipulative, disruptive or other adverse effect on the auction process or the offering; and
- the auction agent will not provide bidders (including us) with any information about the bids of other bidders or auction trends, or with advice regarding bidding strategies, in connection with the auction process.

None of the underwriter, the selling security holder, or we have undertaken any efforts to qualify the warrants for sale in any jurisdiction outside the United States. Except to the limited extent that this offering will be open to certain non-U.S. investors under private placement exemptions in certain countries other than the United States, investors located outside the United States should not expect to be eligible to participate in this offering.

Even if a bidder places a bid in the auction, it may not receive an allocation of the warrants in the offering for a number of reasons described below. You should consider all the information in this prospectus supplement and the accompanying prospectus in determining whether to submit a bid, the number of warrants you seek to purchase and the price per warrant you are willing to pay.

The following brokers have agreed to be network brokers for purposes of the auction process: BB&T Capital Markets, a Division of Scott & Stringfellow, LLC; Blaylock Robert Van, LLC; Cabrera Capital Markets, LLC; Cantor Fitzgerald & Co.; CastleOak Securities, L.P.; Guzman & Company; Keefe, Bruyette & Woods, Inc.; Loop Capital Markets, LLC; Nomura Securities International, Inc.; Samuel A. Ramirez & Company, Inc.; Sandler O'Neill & Partners, L.P.; Muriel Siebert & Co., Inc.; SL Hare Capital, Inc.; Stifel, Nicolaus & Company, Incorporated; Toussaint Capital Partners, LLC; Utendahl Capital Group, LLC; Wedbush Morgan Securities Inc.; and The Williams Capital Group, L.P. The network brokers will not share in any underwriting discounts or fees paid by the selling security holder in connection with the offering of the warrants but may, subject to applicable FINRA and SEC rules and regulations, charge a separate commission to their own customers.

The Auction Process

The following describes how the auction agent will conduct the auction process:

General

- The auction commenced at 8:00 a.m., New York City time, on December 15, 2009, the date specified by the auction agent via press release prior to the opening of the equity markets on such day, and closed at 6:30 p.m., New York City time, on that same day (the "submission deadline"). Unless you submit your bids through the auction agent, your broker will have an earlier deadline for accepting bids. If a malfunction, technical or mechanical problem, calamity, crisis or other similar event occurs that the auction agent

believes may interfere with the auction process, the auction agent may (in consultation with the selling security holder) decide to extend the auction or cancel and reschedule the auction. The auction agent and the network brokers will advise bidders of any such decision to extend or cancel and reschedule the auction using e-mail, telephone or facsimile, and will attempt to make such notification prior to the time the auction is scheduled to close. If the auction process is extended such that it closes at a later time on the same business day, any bids previously submitted will continue to be valid unless amended or cancelled by the bidder, but if the auction is extended such that it closes on the following business day or later, or is cancelled, all bids will be cancelled at the time of such extension or cancellation. We are permitted (but are not required) to bid in the auction in the manner described in the last bullet point under "—The Bidding Process" below.

- During the auction period, bids may be placed at any price (in increments of $0.05) at or above the minimum bid price of $1.50 per warrant.

- The auction agent and the network brokers will contact potential investors with information about the auction process and how to participate and will solicit bids from prospective investors via electronic message, telephone and facsimile. The minimum size of any bid is 100 warrants.

The Bidding Process

- The auction agent and the network brokers will only accept bids in the auction process at the minimum bid price and above the minimum bid price at increments of $0.05.
- No maximum price or auction price range has been established in connection with the auction process, which means that there is no ceiling on the price per warrant that you or any other bidder can bid in the auction. If you submit a market bid (*i.e.*, a bid that specifies the number of warrants you are willing to purchase without specifying the price you are willing to pay), that bid will be treated as a bid at the highest price received from any bidder in the auction.
- Once the auction begins, you may submit your bids either directly through the auction agent or through any network broker. Bids through the network brokers will be aggregated and submitted to the auction agent as single bids at each price increment by those brokers. Bids will only be accepted if they are made on an unconditional basis (*i.e.*, no "all-or-none" bids will be accepted).

In connection with submitting a bid, you will be required to provide the following information:

- the number of warrants that you are interested in purchasing;
- the price per warrant you are willing to pay; and
- any additional information that may be required to enable the auction agent and/or network broker to identify you, confirm your eligibility and suitability for participating in this offering, and, if you submit a successful bid, consummate a sale of warrants to you.
- You may submit multiple bids. Canceling one bid does not cancel any other bid.

However, as bids are independent, each bid may result in an allocation of warrants. Consequently, the sum of your bid sizes should be no more than the total number of warrants you are willing to purchase. In addition, the auction agent may impose size limits on the aggregate size of bids that it chooses to accept from any bidder (including any network broker), although the auction agent is under no obligation to do so or to reconfirm bids for any reason.

- At any time prior to the submission deadline, you may modify your bids to increase or decrease the number of warrants bid for or the price bid per warrant and may withdraw your bid and reenter the auction. Network brokers, however, will impose earlier submission deadlines than that imposed by the auction agent in order to have sufficient time to aggregate bids received from their respective customers and to transmit the aggregate bid to the auction agent before the auction closes. If you are bidding through a network broker, or another broker that is submitting bids through the auction agent or network broker, you should be aware of any earlier submission deadlines that may be imposed by your broker.
- Conditions for valid bids, including eligibility standards and account funding requirements, may vary from broker to broker. Some brokers, for example, may require a prospective investor to maintain a minimum account balance or to ensure that its account balance is equal to or in excess of the amount of its bid. No funds will be transferred to the underwriter until the acceptance of the bid and the allocation of warrants.
- A bid received by the auction agent or any network broker involves no obligation or commitment of any kind prior to the submission deadline. Therefore, you will be able to withdraw a bid at any time prior to the submission deadline (or any deadline imposed by a network broker, if you are bidding through a network broker). Following the submission deadline, however, all bids that have not been modified or withdrawn by you prior to the submission deadline will be considered final and irrevocable and may be accepted. The auction agent and the selling security holder will rely on your bid in setting the public offering price and in sending notices of acceptance to successful bidders.
- If you are requested to reconfirm a bid and fail to do so in a timely manner, the auction agent may deem your bid to have been withdrawn. The auction agent may, however, choose to accept your bid even if it has not been reconfirmed.
- The auction agent may reject any bid that it determines, in its discretion, has a potentially manipulative, disruptive or other adverse effect on the auction process or the offering.
- The auction agent will not provide bidders (including us) with any information about the bids of other bidders or auction trends, or with advice regarding bidding strategies, in connection with the auction process.
- The auction agent or any network broker may require you to deposit funds or securities in your brokerage accounts with value sufficient to cover the aggregate dollar amount of your bids. Bids may be rejected if you do not provide the required funds or securities

within the required time. The auction agent or any network broker may, however, decide to accept successful bids regardless of whether you have deposited funds or securities in your brokerage accounts. In any case, if you are a successful bidder, you will be obligated to purchase the warrants allocated to you in the allocation process and will be required to deposit funds in your brokerage accounts prior to settlement, which is expected to occur three or four business days after the notices of acceptance are sent to you.

- We will be allowed (but we are not required) to bid in the auction. If we decide to bid, we will participate on the same basis as all other bidders without receiving preferential treatment of any kind. You will not be notified by either the auction agent, the network brokers or the selling security holder whether we have bid in the auction or, should we elect to participate in the auction, the terms of any bid or bids we may place. We will be required to submit any bids we make through the auction agent. The submission of issuer bids may cause the clearing price in the auction process to be higher than it would otherwise have been absent such bids.

Pricing and Allocation

- Deutsche Bank Securities will manage the master order book that will aggregate all bids and will include the identity of the bidders (or their brokers, in the case of bids submitted through a network broker). The master order book will not be available for viewing by bidders (including us). Bidders whose bids are accepted will be informed about the result of their bids.
- If valid, irrevocable bids are received for all or more of the warrants being offered, the clearing price will equal the highest price in the auction process at which the quantity of all aggregated bids at or above such price equals 100% or more of the number of warrants being offered.
- If valid irrevocable bids are received for at least 50% but less than 100% of the warrants being offered, the clearing price will equal the minimum bid price.
- Unless the selling security holder decides not to sell any warrants or as otherwise described below, all warrants will be sold to bidders at the clearing price.

If the number of warrants for which bids are received in the auction is:

- 100% or more of the number of warrants offered in this offering as disclosed on the cover of this prospectus supplement (the "Number of Offered Warrants"), then all warrants sold in the offering will be sold at the clearing price (although the selling security holder could, in its discretion, decide to refrain from selling any warrants in the offering after the clearing price has been determined);
- 50% or more but less than 100% of the Number of Offered Warrants, then the selling security holder may, but will not be required to, sell, at the clearing price (equal to the minimum bid price) as many warrants as it chooses to sell up to the number of bids received in the auction; provided that if it chooses to sell any warrants in such a case it will sell a number of warrants equal to at least 50% of the Number of Offered Warrants; or

- Less than 50% of the Number of Offered Warrants, then the selling security holder will not sell any warrants in this offering.
- Promptly after the auction agent determines the clearing price, it will communicate that clearing price to the selling security holder. The selling security holder may decide not to sell any warrants after the clearing price is determined. Once the selling security holder confirms its acceptance of the clearing price (and, in the case where bids are received for fewer than 100% of the warrants being offered, the number of warrants to be sold), the auction agent will confirm allocations of warrants to its clients and the network brokers. The underwriter will sell all warrants at the same price per warrant.
- If bids for all the warrants offered in this offering are received, and the selling security holder elects to sell warrants in the offering, allocation of the warrants will be determined by, first, allocating warrants to any bids made above the clearing price, and second, allocating warrants on a pro-rata basis among bids made at the clearing price. The pro-rata allocation percentage for bids made at the clearing price will be determined by dividing the number of warrants to be allocated at the bidding increment equal to the clearing price by the number of warrants represented by bids at that bidding increment. Each bid submitted at the clearing price will be allocated a number of warrants approximately equal to the pro-rata allocation percentage multiplied by the number of warrants represented by its bid, rounded to the nearest whole number of warrants; *provided* that bids at the clearing price that are pro-rated may be rounded to the nearest 100 warrants. In no case, however, will any rounded amount exceed the original bid size.
- If bids for half or more, but fewer than all of the warrants offered in this offering are received, and the selling security holder chooses to sell fewer warrants than the number of warrants for which bids were received, then all bids will experience equal pro-rata allocation. In other words, each bid, not just those at the lowest price increment, will be allocated a number of warrants approximately equal to the pro-rata allocation percentage multiplied by the number of warrants represented by its bid, rounded to the nearest whole number of warrants; *provided* that the clearing price that are pro-rated may be rounded to the nearest 100 warrants. In no case, however, will any rounded amount exceed the original bid size.
- After the selling security holder confirms its acceptance of the clearing price (and, in the case where bids are received for fewer than 100% of the warrants being offered, the number of warrants to be sold), the auction agent and each network broker that has submitted bids will notify you, in the event your bids have been accepted, by electronic message, telephone, facsimile or otherwise that the auction has closed and that your bids have been accepted. They may also provide you with a preliminary allocation estimate, which will be subsequently followed by a final allocation and confirmation of sale. In the event your bids are not accepted, you may be notified that your bids have not been accepted. As a result of the varying delivery times involved in sending e-mails over the Internet and other methods of delivery, you may receive notices of acceptance before or after other bidders.
- The clearing price and number of warrants being sold are expected to be announced via press release prior to the opening of the equity markets on the business day following the end of the auction. The price will also be included in the notice of acceptance and the

confirmation of sale that will be sent to successful bidders, and will also be included in the final prospectus supplement for the offering.

- Sales to investors bidding directly through the auction agent will be settled via their accounts with Deutsche Bank Securities, while sales through network brokers will be settled through your account with the broker through which your bid was submitted.
- If you submit successful bids, you will be obligated to purchase the warrants allocated to you regardless of whether you are aware that the notice of acceptance of your bid has been sent. Once an underwriter has sent out a notice of acceptance and confirmation of sale, it will not cancel or reject your bid. The auction agent and the selling security holder will rely on your bid in setting the public offering price and in sending notices of acceptance to successful bidders. As a result, you will be responsible for paying for all of the warrants that are finally allocated to you, at the public offering price.

You should carefully review the procedures of, and communications from, the institution through which you bid to purchase warrants.

Auction Process Developments

You should keep in contact with the institution through which your bid has been submitted and monitor your relevant e-mail accounts, telephone and facsimile for notifications related to this offering, which may include:

- Potential Request for Reconfirmation. The auction agent may ask you to reconfirm your bid at its discretion by directly contacting you (or your broker, if you submitted your bid through a broker other than the auction agent), although the auction agent is under no obligation to reconfirm bids for any reason. If you are requested to reconfirm a bid and fail to do so in a timely manner, the auction agent may deem your bid to have been withdrawn. The auction agent may, however, choose to accept your bid even if it has not been reconfirmed.
- Notice of Additional Information Conveyed by Free-Writing Prospectus. Notification that additional information relating to this offering is available in a free-writing prospectus.
- Notice of Acceptance. Notification as to whether any of your bids are successful and have been accepted. This notification will include the final clearing price. If your bids have been accepted, you will be informed about the results of the auction process

Appendix I—Acronyms

Acronym	Definition
ARRA	American Recovery and Reinvestment Act of 2009
COP	Congressional Oversight Panel
CPP	Capital Purchase Program
EESA	Emergency Economic Stabilization Act of 2008
FMV	Fair Market Value
GAO	Government Accountability Office
OFS	Office of Financial Stability
QEO	Qualified Equity Offering
SIGTARP	Special Inspector General for the Troubled Asset Relief Program
SPA	Securities Purchase Agreement
TARP	Troubled Asset Relief Program

Appendix J—Audit Team Members

This report was prepared and the review was conducted under the direction of Kurt Hyde, Deputy Inspector General for Audits, Office of the Special Inspector General for the Troubled Asset Relief Program. The staff members who conducted the audit and contributed to the report include James Shafer, Anne Keenaghan, Amy Poster, and Kamruz Zaman.

Appendix K—Treasury's Comments

DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

ASSISTANT SECRETARY

May 7, 2010

Neil M. Barofsky
Special Inspector General
Office of the Special Inspector General for the Troubled Asset Relief Program
1500 Pennsylvania Ave., NW, Suite 1064
Washington, D.C. 20220

RE: SIGTARP Official Draft Audit Report

Dear Mr. Barofsky:

Thank you for giving the U.S. Department of the Treasury (Treasury) the opportunity to review and comment on your official draft audit report regarding the warrant disposition process. This letter provides our official comment on the draft report.

We are pleased that your report concludes that we have succeeded in negotiating prices from institutions for their warrants that are at or above our estimates of fair market value. Your summary of our methodology for estimating fair market value is particularly informative, and we believe your report should be helpful in explaining this complicated subject to the public.

With respect to your recommendations, we welcome your suggestions. Although we disagree with some of your findings, we will review our procedures to ensure that there is sufficient consistency in our process. We will respond more fully to your findings and provide a detailed description of the actions that Treasury will take with regard to the concerns expressed in the recommendations within 30 days of the issuance of the final audit report.

We share your commitment to transparency and accountability in all of TARP's programs and policies. We look forward to continuing to work with you and your team as we continue our efforts to stabilize our financial system.

Sincerely,

Herbert M. Allison, Jr.
Assistant Secretary for Financial Stability

SIGTARP Hotline

If you are aware of fraud, waste, abuse, mismanagement, or misrepresentations associated with the Troubled Asset Relief Program, please contact the SIGTARP Hotline.

By Online Form: www.SIGTARP.gov *By Phone:* Call toll free: (877) SIG-2009

By Fax: (202) 622-4559

By Mail: **Hotline: Office of the Special Inspector General for the Troubled Asset Relief Program**
1801 L Street., NW, 4th Floor
Washington, D.C. 20220

Press Inquiries

If you have any inquiries, please contact our Press Office:

Kristine Belisle
Director of Communications
Kris.Belisle@do.treas.gov
202-927-8940

Legislative Affairs

For Congressional inquiries, please contact our Legislative Affairs Office:

Lori Hayman
Legislative Affairs
Lori.Hayman@do.treas.gov
202-927-8941

Obtaining Copies of Testimony and Reports

To obtain copies of testimony and reports, please log on to our website at www.sigtarp.gov.

the written testimony of
Dr. Linus Wilson, Assistant Professor of Finance, University of Louisiana at Lafayette[i]

before
The House Financial Services Subcommittee on Oversight and Investigations' hearing on "TARP Oversight: An Update on Warrant Repurchases and Benefits to Taxpayers"

on May 11, 2010, at 11:00 A.M. in 2128 House Rayburn Office Building

Introduction

I want to thank Subcommittee Chairman Dennis K. Moore (D-KS), ranking member the Honorable Judy Biggert (R-IL), and the members of the House Financial Services Subcommittee on Oversight and Investigations for calling this hearing on the U.S. Treasury's management of the taxpayers' Troubled Asset Relief Program (TARP) warrants. I am honored to be invited to appear before the subcommittee today. The TARP program gave the U.S. Treasury Secretary unprecedented authority to disburse up to $700 billion. The tireless efforts of this subcommittee, other committees in Congress, the Congressional Oversight Panel (COP), SIGTARP, the Government Accountability Office (GAO), the Congressional Budget Office (CBO), and concerned citizens have allowed taxpayers to have a chance to be made whole on their reluctant investments in the banking sector.

We meet today on almost the one year anniversary of the first warrant transaction, with Old National Bancorp. That transaction demonstrated that the U.S. Treasury without oversight will squander the taxpayers' profits from their very risky investments in the banking sector. The auctions of several banks' warrants make me hopeful that the taxpayers will get close to fair market value for their warrants in over 280 publically traded banks. Yet, by my estimates, the U.S. Treasury and the administration today plan to squander a fair market value of warrants and preferred stock of approximately $3.0 billion by allowing existing Capital Purchase Program recipients to cancel their warrants and convert their preferred stock into the proposed Small Business Lending Fund. Thus, vigilance and oversight is essential to ensure that taxpayers hold onto the returns they have earned from the TARP warrants because the U.S. Treasury left to its own devices has often been a poor steward of the $700 billion of taxpayer funds.

My Background

While I teach and conduct research in finance at the University of Louisiana at Lafayette, the views that are expressed today are my own and not necessarily the views of my university or the state of Louisiana. I received my Doctor of Philosophy in economics at Oxford University in England in 2007. In addition to my other academic research in finance and economics, I have written fourteen academic papers on the TARP warrants, government plans to buy so-called "toxic assets" from banks, the effectiveness of various types of capital in encouraging bailed-out banks to make good loans, and the too-big-to-fail problem.[ii] Half of those papers on the bank bailouts have to date been accepted or appeared in peer-reviewed, academic journals.

Early Attempts to Cancel the TARP Warrants

The U.S. Treasury under Henry Paulson was forced by Congressional negotiators such as Senator Jack Reed (D-RI) to obtain warrants that allow taxpayers to profit from the recovery of the banking sector.[iii] Yet, when the Capital Purchase Program was formulated, taxpayers were given far fewer warrants with worse terms than similar investments by Warren Buffett's company Berkshire Hathaway in Goldman Sachs.[iv] Despite these generous terms relative to private sector investments as documented by the Congressional Oversight Panel and the Congressional Budget Office, the banks wanted more subsidies.[v]

On March 31, 2009, the first banks repaid their Capital Purchase Program (CPP) preferred stock. The TARP warrants were early targets of the banking lobbyists and bank CEOs. On April 16, 2009, the American Banker's Association (ABA) wrote U.S. Treasury Secretary Timothy Geithner to convince the U.S. Treasury to cancel the TARP warrants. This letter was reported in the *Wall Street Journal* soon after, "Today, most of the warrants are essentially worthless, because their exercise price is higher than where most banks' stocks are trading."[vi] That statement could not have been more wrong, and any student of finance would have spotted that error. In analysis that I have prepared for this committee today, on March 30, 2009, the taxpayers' warrants had a fair market value of $8.2 billion.

The article was correct in that most warrants at the time could not be immediately exercised at a profit. Warrants are call options that allow the owner to buy newly issued stock at a preset price. At the end of March 2009, options were very valuable and option markets were predicting wild swings in stock prices. Options, because they have limited downside, benefit from the fact that there can be great swings in the stock price. The TARP warrants were issued with ten years to expiration. Thus, with nine years to go in March 2009, the bank stocks and thus the TARP warrants had a lot of upside potential. (A longer time to expiration makes options more valuable.) Moreover, with over nine years to expiration, the taxpayers' warrants had a longer life than any traded options or warrants. Today, with the recovery of bank shares, many of the taxpayers' remaining warrants can be exercised for a profit. To date, the U.S. Treasury has collected $6.1 billion from repurchases and auctions. The warrants still held by taxpayers represent securities issued by 236 banks and insurance companies which participated in the Asset Guarantee Program (AGP), Targeted Investment Program (TIP), and Capital Purchase Program (CPP). I estimate that the fair market value of warrants which have not yet been sold prior to this hearing were worth $4.1 billion on March 31, 2010.

Oversight Works

Much to my surprise, my research into "The Goldman Sachs Warrants" and the first warrant repurchase garnered considerable interest.[vii] I argued that only through third party sales and auctions could taxpayers hope to get the best prices. The Congressional Oversight Panel (COP) adopted a very similar methodology to my papers. The COP, using the option pricing models of Black and Scholes and Merton with dilution adjustments of Galai and Schneller, on July 10, 2009, found that the early repurchases were for 66 percent of fair market value.[viii] Soon after, Congresswoman Mary Jo Kilroy (D-OH), a member of this subcommittee, introduced the PROFIT act to force the U.S.

Treasury to auction the TARP warrants of the biggest banks.[ix] On July 15, 2009, Dr. Robert Jarrow, the author of a textbook and numerous academic articles on derivatives and option pricing was employed for one month by the U.S. Treasury to oversee the warrant valuation process.[x] On July 22, 2009, early in the day of the first hearing about the U.S. Treasury's disposition of bank warrants, my interview with the BBC World Service warned that Office of Financial Stability officials would the subject of Congressional scrutiny if they offered investment banks, which routinely awarded thousands of seven figure jobs, sweetheart deals on the taxpayers' warrants.[xi] That day Goldman Sachs announced its $1.1 billion repurchase of the taxpayer's warrants. That price was the closest price to my estimated fair market value of any bank up to that time. Several other very good negotiations for taxpayers followed.[xii]

The first auctions were held in December 2009. Before December 2009, there were no traded options or warrants with expiration dates later than 2014. With the auctions of the warrants issued by Capital One, JP Morgan Chase, and TCF Financial, we got the first glimpse of what long-dated warrants were worth in the open market. In all three auctions, taxpayers got higher prices than they were offered in negotiations.[xiii]

My paper "Anchoring Bias in the TARP Warrant Negotiations" shows that, based on the estimates of third party consultants paid by the U.S. Treasury, the U.S. Treasury in 2009 got better prices over time and made large banks pay higher prices as a percent of fair market value.[xiv] However, that paper also shows that the U.S. Treasury was more likely to make bad deals when banks started out with lowball opening offers. Most of these results were confirmed when I scaled the prices by Congressional Oversight Panel estimates. This study argues that the U.S. Treasury should be careful to not be swayed in its own judgment of fair market value of the warrants by lowball offers of banks. I applaud the U.S. Treasury for publishing the *Warrant Disposition Report* in January.[xv] I hope that they will publish such a report on a semi-annual basis going forward. Further, I hope that they will publish more details about the auctions that have been held.

The pace of completed negotiated transactions has slowed down since the first auctions. While I believe the U.S. Treasury negotiated many good deals for taxpayers from smaller banks in December 2009,[xvi] the repurchase by City National Bank of Beverly Hills, completed in April 2010, shows that the U.S. Treasury still may be willing to sell taxpayers' investments on the cheap. I believe that the taxpayers would have gotten a better price if the PROFIT Act forced the U.S. Treasury to auction the warrants issued by the Beverly Hills based bank.

The Small Business Lending Fund's Threat to the TARP Warrants

The proposed $30 billion Small Business Lending Fund would allow over 580 of the smaller Capital Purchase Program recipient banks to wipe out the warrants worth $457 million, according to my estimates.[xvii] $262 million represents the estimated fair market value of warrants that could be cancelled by publicly traded banks, and $195 million represents the estimated value of the warrants that could be wiped out by private banks under the initiative. The private banks' warrants function similar to upfront points on a loan, which increase the balance of their preferred stock or subordinated debt loan from taxpayers. The private bank warrants are similar to paying points on a mortgage. To cancel the private bank TARP warrants would be equivalent to a bank's forgiving principal on a mortgage loan. I valued these private bank warrants with standard bond

pricing techniques.[xviii] These points on the private bank loans seem justified since similar subordinated debt or preferred stock would come with far higher dividends or interest payments if such capital were available at all.

My paper "TARP's Deadbeat Banks" lists eighty-two banks at last count in the Capital Purchase Program which missed dividend and interest payments owed to taxpayers.[xix] The taxpayers' preferred stock and subordinated debt investments are very risky and the proposed one percent dividend is insufficient compensation for that risk. I estimate that the fair market value of the taxpayers' preferred stock in these roughly 580 publicly traded and privately held banks would fall by $2.5 billion if they left the Capital Purchase Program for the Small Business Lending Fund. If we add in the subsidies to new banks entering the fund, which are not in the CPP, the subsidy to small banks and their shareholders would increase by $5.5 billion. That is, for a $30 billion fund, taxpayers should expect to lose about $8.4 billion or 28 percent of their investment on the day a typical investment is made by the fund.

The TARP was an emergency legislation enacted to stop a banking panic. Before Mr. Paulson proposed that plan, no politician would have thought expanded government ownership of banks is a good thing. Today we have perpetual investments in over six hundred banks. This small business lending fund would increase the number of banks under state ownership. Increasing the number of banks with taxpayer investments distorts capital markets and makes it harder for banking supervisors to restructure undercapitalized institutions as with UCBH Holdings and Pacific Coast National Bancorp, which were restructured in FDIC receivership in November 2009.[xx] I think policy makers can design better ways to stimulate growth through tax cuts, direct stimulus, or deficit reduction. Giving handouts to banks, albeit smaller ones, does not make any sense.

Large Warrant and Common Stock Sales This Year

In the coming weeks and months, I expect the U.S. Treasury to raise $2.7 billion from the sale of the warrants of just five institutions: Wells Fargo, The Hartford insurance company, the Lincoln National insurance company, Discover, and Citigroup.

A successful sale of the taxpayers' $31 billion of common stock of Citigroup is one the biggest challenges that the U.S. Treasury faces today. I argue in my paper "Selling Citigroup" that their current strategy of slow, at-the-market sales is inferior to a large underwritten secondary offering of this stake.[xxi] Taxpayers' holdings are poorly diversified, and thus they are not fully rewarded for the risks that they take by their concentrated holdings in Citigroup compared to well-diversified private investors. Moreover, the U.S. Treasury's tight deadline of mid-December 2010, and late start to the sale makes it difficult to sell the 7.7 billion shares, or 27 percent stake in the large bank.[xxii]

I do not believe that breaking this public promise to Citibank's managers and investors to sell its stake before the end of the year is a good idea. Failure to complete this sale would hurt the U.S. Treasury's credibility before capital markets, and may cause Citibank's share price to fall as the prospects of the end of government ownership dim. For this reason, I am disappointed that the U.S. Treasury has been slow to lock in profits.

Conclusion

The increased frequency of auctions versus negotiations has ensured that taxpayers are justly rewarded for their risky investments in the banking sector. Contrary to the banking lobby's early propaganda, the Troubled Asset Relief Program (TARP) warrants have proven to be very valuable raising $6.1 billion so far. I expect the U.S. Treasury to raise a further $4.1 billion from 236 banks with warrants outstanding based on the prices at the end of the first quarter. The administration plans to give away $3.0 billion subsidy to about 580 existing TARP recipients. The U.S. Treasury wants them to participate in a so-called Small Business Lending Fund, which would cancel the taxpayers' warrants and convert the 5 percent preferred stock into 1 percent preferred stock. The Small Business Lending Fund is TARP 2.0, but TARP 2.0 has none of the upside for taxpayers that TARP 1.0 had. We should be contracting state ownership of the banking sector not expanding it. Finally, the sale of the 27 percent stake of Citigroup common stock has moved too slowly, and the administration should consider a large underwritten sale of that stock to lock in profits and reduce taxpayers' firm specific risk in the large bank.

I thank Chairman Moore and ranking member Biggert and the other members of the subcommittee for inviting me today and holding this hearing on the taxpayers' warrants. I look forward to learning more about the SIGTARP's study on the warrant process. Further, I look forward to and encourage the subcommittee members' questions and perspectives.

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[ii] My research on the TARP is at www.TARPwarrants.com.

[iii] See Phillip Swagel, 2009, "The Financial Crisis an Inside View," *Brooking Papers on Economic Activity* Spring, 1-63, accessed online on May 7, 2010, at http://www.brookings.edu/economics/bpea/~/media/Files/Programs/ES/BPEA/2009_spring_bpea_papers/2009_spring_bpea_swagel.pdf.; Barney Frank, October 11, 2008, "Congressman Barney Frank's Letter to Constituents on the Economic Crisis," accessed online at http://www.house.gov/frank/economiccrisis101108.html.; and page 305 of Henry M. Paulson, Jr., 2010, *On the Brink: Inside the Race to Stop the Collapse of the Global Financial System*, New York: Business Plus.

[iv] See Linus Wilson, "The Goldman Sachs Warrants," 2009, *Review of Business*, Vol. 30, No. 1, Fall 2009, pp. 4-32, accessed online on May 7, 2010, at http://www.stjohns.edu/download.axd/0333259325f24e20bf0db9ec84035b6f.pdf?d=M1-5804%20Review%20of%20Businessfall2009; Patrick Hosking and Leo Lewis, September 25, 2008, "Warren Buffett stake in Goldman Sachs earns $783 million return," *The Times* (of London), accessed online on May 4, 2009 at http://business.timesonline.co.uk/tol/business/industry_sectors/banking_and_finance/article4821506.ece.; and Randall W. Forsyth, October 14, 2008, "Buffett Drives a Harder Bargain than Paulson: Banks get cheaper financing from Treasury than from Berkshire Hathaway," *Barron's*, accessed online on October 15, 2008 at http://online.barrons.com/article/SB122401409814533513.html. As part of the Capital

Purchase Program (CPP) designed by the former Goldman Sachs chief executive Henry Paulson, the taxpayers received preferred stock that paid a dividend of 5 percent for the first five years and 9 percent thereafter when it invested $10 billion in Goldman Sachs. The taxpayers' warrants were attached to 15 percent of the preferred stock's par value. In contrast, Warren Buffet through Berkshire Hathaway bought preferred stock with 10 percent dividends and warrants on 100 percent of the purchase price. Warren Buffet's warrants issued by Goldman Sachs had a lower strike price than the taxpayers' warrants, but they only had five years to expiration. Mr. Paulson argues in his memoir that the Omaha billionaire, Warren Buffett, encouraged him to give such generous terms to Goldman Sachs and the other banks. See page 355 of Henry M. Paulson, Jr., 2010, *On the Brink: Inside the Race to Stop the Collapse of the Global Financial System*, New York: Business Plus. Paulson writes, "Warren [Buffett] suggested asking for a 5 or 6 percent dividend...my team had been leaning towards a 7 or 8 percent dividend." Thus, the interests of billionaires came before taxpayers' interests early on in the CPP program.

[v] Congressional Budget Office, 2009, "The Troubled Asset Relief Program: Report on Transactions through December 31, 2008" accessed online on May 6, 2009 at http://www.subsidyscope.com/projects/bailout/documents/15/ and Congressional Oversight Panel, 2009, February 6, 2009, "February Oversight Report: Valuing Treasury's Acquisitions," accessed online on May 5, 2009, at http://cop.senate.gov/reports/library/report-020609-cop.cfm.

[vi] This argument was advanced by Diane Casey Landry, Chief Operating Officer, American Bankers Association, in an April 14, 2009, letter addressed to U.S. Treasury Secretary, Timothy Geithner. The article quoted was Damian Paletta and Deborah Solomon, April 22, 2009, "Financial Firms Lobby to Cut Cost of TARP Exit," accessed online on April 27, 2009 at http://online.wsj.com/article/SB124035639380840961.html.

[vii] See my papers Linus Wilson, "The Goldman Sachs Warrants," 2009, *Review of Business,* Vol. 30, No. 1, Fall 2009, pp. 4-32, accessed online on May 7, 2010, at http://www.stjohns.edu/download.axd/0333259325f24e20bf0db9ec84035b6f.pdf?d=M1-5804%20Review%20of%20Businessfall2009.; and Linus Wilson, 2009, "Valuing the First Negotiated Repurchase of the TARP Warrants," *SSRN Working Paper*, accessed online on March 7, 2010, at http://ssrn.com/abstract=1404069. The first of dozens of news stories covering the warrant negotiations of the spring and summer 2009 were Eric Dash, May 19, 2009, "Efforts to Repay Bailouts May Undercut Benefit for Taxpayers," New York Times, accessed online on August 16, 2009, at http://www.nytimes.com/2009/05/19/business/19warrant.html and Mark Pittman, May 22, 2009, "TARP Warrants Show Banks May Reap 'Ruthless Bargain' (Update2)" *Bloomberg* accessed online on September 29, 2009, at http://www.bloomberg.com/apps/news?pid=newsarchive&sid=ae2fQFMrDer4.

[viii] The references are Fischer Black and Myron Scholes, 1973, "The Pricing of Options and Corporate Liabilities," *Journal of Political Economy, 81*, 637–654.; Robert C. Merton, 1973, "Theory of Rational Option Pricing," *Bell Journal of Economics and Management Science, 4*, 141–183.; and Galai, Dan, and Meir I. Schneller, 1978, "Pricing of Warrants and the Valuation of the Firm," *Journal of Finance*, 33, 1333-1342. The COP report valuing the first eleven negotiations is Congressional Oversight Panel, 2009, July 10, 2009, *TARP Repayments, Including the Repurchase of Stock Warrants*, accessed online on September 28, 2009, at http://cop.senate.gov/documents/cop-071009-report.pdf. The largest difference between my methodology and the COP panel's estimates prior to the December 2009 auctions was that I estimated the value of the warrant cutting provisions which expired at the end of 2009, using the methodology of my paper Linus Wilson, 2010, "A Model for Estimating the Cancellation Probabilities of TARP Warrants" *forthcoming Advances in Accounting Finance and Economics*, accessed online on May 7, 2010, at http://ssrn.com/abstract=1413442.

[ix] H.R. 3232: PROFIT Act of 2009, 111th Congress, 2009-2010, accessed online on September 29, 2009, at http://www.govtrack.us/congress/bill.xpd?bill=h111-3232. This bill if enacted would have required the auction of all bank warrants for banks that received more than $250 million from the TARP.

[x] Dr. Jarrow was employed by the U.S. Treasury from July 15, 2009, to August 15, 2009, according to Robert Jarrow, 2009, "TARP Warrant Valuation Methods," U.S. Treasury, Office of Financial Stability, accessed online on December 30, 2009, at http://www.financialstability.gov/docs/Jarrow%20TARP%20Warrants%20Valuation%20Method.pdf.

[xi] Steve Evans, July 22, 2010, "Are the bank bailouts too generous?" *BBC: Business Daily*, http://www.bbc.co.uk/worldservice/business/2009/07/090722_tarp_business_daily.shtml.

[xii] Colin Barr, July 22, 2009, "Goldman 'warrants' raves from Congress," *Fortune*, accessed online at http://money.cnn.com/2009/07/22/news/economy/tarp.warrants.fortune/index.htm

[xiii] U.S. Treasury, (2010), "Warrant Disposition Report: Troubled Asset Relief Program," Office of Financial Stability, accessed online on February 14, 2010, at http://www.financialstability.gov/docs/TARP%20Warrant%20Disposition%20Report%20v4.pdf.

[xiv] Linus Wilson, 2009, "Anchoring Bias in the TARP Warrant Negotiations," *SSRN Working Paper*, accessed online on May 7, 2010, at http://ssrn.com/abstract=1553969.

[xv] *Ibid.*

[xvi] See the estimates reported in Steve D. Jones, January 15, 2010, "IN THE MONEY: Auctions Up The Ante In Private Warrant Deals," *Dow Jones Newswires*. Using the methodology in Linus Wilson, 2010, "The Biggest Warrant Auction in U.S. History," *Research in Business and Economics Journal, 2*, 1-12, I found that five out of six negotiations in December led to prices higher that what could have been expected from auctions. Using the auction and secondary market prices of December 2009, I examined seventeen other small bank deals and found only six of those pre-December 2009 deals were likely better for taxpayers than what could have been achieved from an auction.

[xvii] The Small Business Lending Fund proposes to provide preferred stock with as low as a one percent dividend rate to banks with less than $10 billion in assets. See White House, February 2, 2010, "Fact Sheet: Administration Announces New $30 Billion Small Business Lending Fund," accessed online on May 7, 2010, at http://www.whitehouse.gov/sites/default/files/FACT-SHEET-Small-Business-Lending-Fund.pdf.

[xviii] The private bank warrants have a par of 5 percent of the taxpayers' investment and are immediately exercised into preferred stock or subordinated debt, depending on the taxpayers' investment. They pay a dividend of 9 percent for a privately held C-Corps. For S-Corps, which receive subordinated debt, have CPP warrants that pay 7.8 percent for the first five years and 13.8 percent thereafter. See U.S. Treasury, "Fact Sheet Capital Purchase Program", Office of Financial Stability accessed online on May 9, 2010, at http://www.financialstability.gov/roadtostability/CPPfactsheet.htm. I assumed that appropriate yield on the private bank's preferred stock was 9 percent. Further, it was assumed that these banks would repay the taxpayers' investments in four years.

[xix] Linus Wilson, 2010, "TARP's Deadbeat Banks," *SSRN Working Paper*, accessed online on March 7, 2010, http://ssrn.com/abstract=1527270.

[xx] See Andrew McIntosh, November 18, 2009, "Some California banks struggle despite bailout," *Sacramento Bee*, 18A, accessed online on May 7, 2010, at http://www.sacbee.com/business/story/2331909.html.

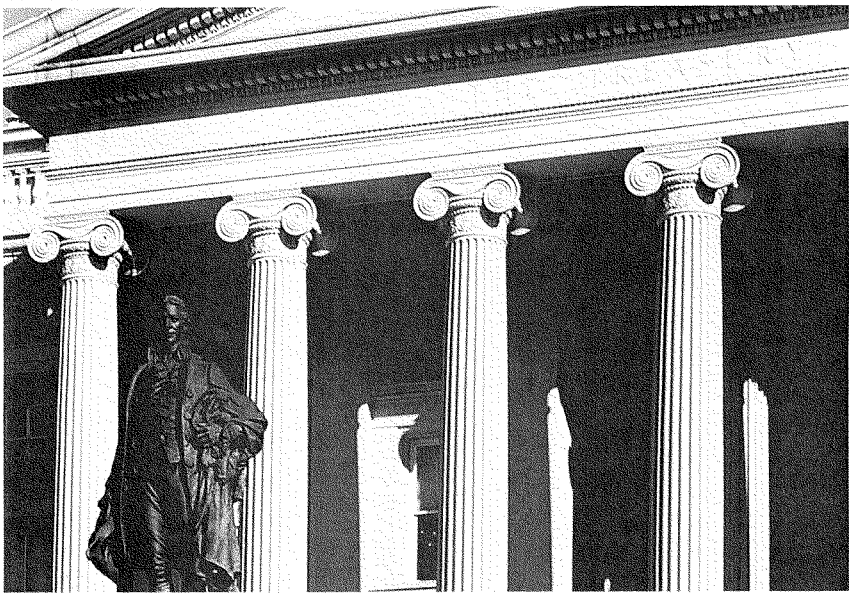
[xxi] Linus Wilson, 2010, "Selling Citigroup: A Simulation of the U.S. Treasury's $37 Billion TARP Share Sale," *SSRN Working Paper*, accessed online on March 7, 2010, at http://ssrn.com/abstract=1600298.

[xxii] David Lawder and Maria Aspan, "Treasury begins sale of Citigroup stake," *Reuters*, accessed online on May 7, 2010, at http://www.reuters.com/article/idUSTRE63P4KD20100426.

UNITED STATES DEPARTMENT OF THE TREASURY

OFFICE OF FINANCIAL STABILITY

Warrant Disposition Report



Troubled Asset Relief Program
Office of Financial Stability

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The U.S. Department of the Treasury (Treasury) is pleased to present its TARP Warrant Disposition Report as of December 31, 2009. This report provides an overview of the warrants received by Treasury under the Capital Purchase Program (CPP) of the Troubled Asset Relief Program (TARP) and an explanation of the warrant disposition process and the results achieved on behalf of taxpayers.

EXECUTIVE SUMMARY

The Emergency Economic Stabilization Act of 2008 (EESA) requires that Treasury receive warrants in connection with the purchase of troubled assets.

A major part of the TARP was the CPP. It was created in October 2008 to stabilize the financial system by providing capital to viable banks of all sizes nationwide. Under this program, Treasury invested $205 billion in 707 banks.

Under the CPP, Treasury purchased shares of senior preferred stock or other securities from qualifying U.S.-controlled banks, savings associations, and other financial institutions. As part of its investment, Treasury also received warrants to purchase shares of common stock or other securities from the banks. The purpose of the warrants was to provide taxpayers with an additional potential return on the government's investment.

To date, the disposition of warrants has succeeded in significantly increasing taxpayer returns on the CPP preferred investments that have been repaid. As of December 31, 2009, Treasury has received $4 billion in gross proceeds on the disposition of warrants in 34 banks, consisting of (i) $2.9 billion from repurchases by the issuers at agreed upon fair market values and (ii) $1.1 billion from auctions.[1] For those 34 institutions, Treasury received an absolute return of 3.1% from dividends and an added 5.7% return from the sale of the warrants for a total absolute return of 8.8%.[2] These returns are not predictive of the eventual return on the entire CPP portfolio.

When a bank repays the CPP investment, it has the right to repurchase its warrants at an agreed upon fair market value. The warrants do not trade on any market and do not have observable market prices. Accordingly, Treasury has established a methodology for evaluating a company's determination of fair market value. If a bank chooses not to repurchase its warrants, then Treasury intends to sell the warrants to a third party.

The first CPP warrant repurchase was completed in May 2009, and Treasury began the public sale of warrants to third parties in December 2009. Treasury follows a consistent process to dispose of the CPP warrants for all banks, regardless of the size of the institution or the warrant position. This process is designed to ensure that taxpayers receive fair market value for the CPP warrants whether they are repurchased by the issuer or sold to a third party.

At the end of 2009, Treasury held warrants in 18 institutions that have fully redeemed the CPP investment, and Treasury intends to sell those positions in the near future. Treasury also holds warrants in 230 public companies that have not repaid the CPP investments. In addition, Treasury also holds warrants in public companies in connection with other TARP programs, such as the Targeted Investment Program (TIP) and the Asset Guarantee Program (AGP). For example, Treasury holds warrants in Bank of America Corporation associated with both CPP (121,792,790 shares with an exercise price of $30.79) and TIP (150,375,940 shares with an exercise price of $13.30). Treasury's disposition process is the same for warrants acquired under all TARP programs.

1 Six private banks have also repurchased the warrant preferred shares that Treasury exercised at the time of purchase. See Footnote 4 and the last table in Appendix II.

2 Returns not annualized.

The table below shows the proceeds from the eight largest warrant repurchases and the three warrant auctions as of December 31, 2009.

FIGURE 1 : SUMMARY OF GROSS PROCEEDS FROM SALE OF PUBLIC WARRANTS AS OF DECEMBER 31, 2009

Institution Name	Ticker	Preferred Repurchase Date	Preferred Amount ($millions)	Warrant Repurchase/ Auction Date	Gross Warrant Proceeds ($millions)
REPURCHASES					
Goldman Sachs Group, Inc.	GS	6/17/09	$10,000.0	7/22/09	$1,100.0
Morgan Stanley	MS	6/17/09	$10,000.0	8/12/09	$950.0
American Express Company	AXP	6/17/09	$3,388.9	7/29/09	$340.0
U.S. Bancorp	USB	6/17/09	$6,599.0	7/15/09	$139.0
Bank of New York Mellon	BK	6/17/09	$3,000.0	8/5/09	$136.0
Northern Trust Corporation	NTRS	6/17/09	$1,576.0	8/26/09	$87.0
BB&T Corporation	BBT	6/17/09	$3,133.6	7/22/09	$67.0
State Street Corporation	STT	6/17/09	$2,000.0	7/8/09	$60.0
Others			$1,558.2		$38.0
Total	31		$41,255.7		$2,917.0
AUCTIONS					
JPMorgan Chase & Co.	JPM	6/17/09	$25,000.0	12/10/09	$950.3
Capital One Financial Corp.	COF	6/17/09	$3,555.2	12/3/09	$148.7
TCF Financial Corporation	TCF	4/22/09	$361.2	12/15/09	$9.6
Total	3		$28,916.4		$1,108.6

Background

As required by EESA, Treasury received warrants from CPP banks to provide taxpayers with an additional potential return on the government's investment.[3]

For each CPP investment in a publicly traded company, Treasury received warrants to purchase, at a fixed exercise price, shares of common stock equal to 15 percent of the aggregate liquidation preference of the senior preferred investment. The per share exercise price was set at the 20-trading day trailing average of the bank's common stock price as of the time it was given preliminary approval for the CPP investment. The warrants may be exercised at any time over a ten year period. These public warrants include certain customary anti-dilution provisions for Treasury's protection.

For CPP investments in a privately-held company, an S-corporation, or certain mutual institutions, Treasury received warrants to purchase, at a nominal cost, additional preferred stock (warrant preferreds) or subordinated debentures (warrant sub debt) equivalent to five percent of the aggregate liquidation preference of the primary CPP investment. These warrant preferreds and warrant sub debt securities pay a higher dividend or interest rate than the primary CPP investment. Treasury exercised these kinds of warrants at the closings of the investments.

Institutions may repay Treasury for its investment under the conditions established in the CPP purchase agreements as amended by the American Recovery and Reinvestment Act of 2009 (ARRA). The repayment price is equal to what Treasury invested, plus any unpaid dividends or interest. Originally, the CPP contracts provided that an institution could not redeem the investment within the first three years except with the proceeds of a "qualified equity offering" (QEO), which is an offering of securities that would qualify as Tier 1 capital. The repayment terms of the contracts were later effectively amended by the ARRA, which provides that an institution can repay from any source of funds and without regard to any waiting period.

In addition, in order to encourage institutions to seek additional private capital, the CPP contracts provided that participants could halve the number of shares subject to their warrants by completing before December 31, 2009 one or more QEOs with aggregate gross proceeds equivalent to the value of Treasury's CPP investment. Thirty-eight CPP participants completed a QEO in time to reduce their warrants. (See Appendix V for a list of all completed QEOs.)

The CPP contracts further provide that once the preferred investment is redeemed or sold by Treasury, the institution has a right to repurchase the warrants at the fair market value. In addition, Treasury has the contractual right to sell the warrants.

The ARRA affected Treasury's authority to dispose of warrants, as it provided that when an institution repaid, "the Secretary shall liquidate warrants [of such institution]... at the current market price." The ARRA was subsequently amended in May 2009 through the Helping Families Save Their Homes Act of 2009 (HFSTHA), which provides that the Secretary "may liquidate the warrants" following repayment. (See Appendix I for excerpts from EESA, AARA, and HFSTHA, which govern the warrant sales.)

3 EESA provides that the Secretary may establish a "de minimus" exception to the requirement to issue warrants in the case of an institution that receives less than $100 million in TARP funds. Treasury has exercised that authority by not requiring warrants in the case of investments in Community Development Financial Institutions in order to encourage their participation in CPP.

Warrant Disposition Process

Upon redemption of the preferred stock issued to Treasury, an institution has a contractual right to repurchase its warrants at the fair market value.[4] The banks have 15 days from repayment of the preferred to submit a bid, and Treasury then has 10 days to respond. In June 2009, Treasury announced that, in the event that an issuer does not repurchase its warrants, Treasury would sell the warrants to third parties "as quickly as practicable" and, when possible, by public auction.

Issuer Repurchases

If a company wishes to repurchase its warrants, the issuer and Treasury must agree on the warrants' fair market value. Accordingly, Treasury has established a methodology for evaluating a bank's determination of fair market value. As described below, Treasury's evaluation of an issuer's bid is based on three categories of input: (i) market quotes, (ii) independent, third party valuations, and (iii) model valuations.

If the issuer and Treasury fail to agree on a price, an appraisal procedure may be invoked by either party within 30 days following Treasury's response to the issuer's first bid. In the appraisal process, each party selects an independent appraiser. These independent appraisers conduct their own valuations and attempt to agree upon the fair market value. If they agree on a fair market value, that valuation becomes the basis for repurchase. If these appraisers fail to agree, a third appraiser is hired, and subject to some limitations, a composite valuation of the three appraisals is used to establish the fair market value. To date, no institution has invoked the appraisal procedure.

Even if agreement is not reached within the specified timeframe, a bank that has repaid its preferred stock may bid to repurchase its warrants at any time, and Treasury will determine whether to accept the bid.

Sale to Third Party

Treasury retains the right to sell the warrants to a third party at a mutually agreed upon price. Following repayment of the preferred stock, if a bank notifies Treasury that it does not intend to repurchase its warrants or cannot agree with Treasury on the fair market value, Treasury intends to dispose of the warrants, when possible, through public auctions.

Treasury held the first three of such auctions in December 2009. These auctions were conducted as public modified "Dutch" auctions which were registered under the Securities Act of 1933. Only one bank's warrants were sold in each auction. In this format, bidders were able to submit one or more independent bids at different price-quantity combinations and the warrants were sold at a uniform price that cleared the auction.

4 Privately-held companies, S-corporations, and certain mutual institutions typically redeem their warrant preferred or subordinated debentures at par when redeeming the primary CPP investment. (See Appendix II for table of warrant preferred repurchases as of December 31, 2009.)

Treasury's Evaluation of Issuer's Bid

Treasury adheres to a consistent process for evaluating bids from institutions to repurchase their warrants. Upon receiving a bid for a warrant repurchase, Treasury utilizes (i) market quotes, (ii) independent, third party valuations, and (iii) model valuations to assess the bid.

(i) Market Quotes

There is little comparable market data for long-dated options. In order to perform its valuation analysis, Treasury seeks indications of value from various market participants active in the options markets. The range of estimated valuations is included in Treasury's analysis along with the average of the market indications collected. In the future, Treasury will utilize the market information from the trading of the recently auctioned CPP warrants as some indication of the market's expectations for long-term volatility, as well as continue to collect valuation estimates from market participants.

(ii) Third Party Valuations

Treasury engages outside consultants or external asset managers to provide independent, third party valuations for the warrants. The third party provides Treasury with an estimated valuation along with a range of potential values given a reasonable variance in the assumptions underlying their models.

(iii) Model Valuations

Treasury uses a number of financial models to estimate warrant valuations. The primary model that Treasury uses is a binomial option model adjusted for American style options, which is a well-accepted method for valuing options by both academics and market participants. Valuation estimates generated from the binomial model are presented in the Treasury's analysis along with a range of potential values given a reasonable variance in key model inputs, such as assumptions about the expected future volatility and dividend yield of the underlying stock. Treasury's internal valuation modeling was reviewed by Dr. Robert Jarrow, an options expert and professor at Cornell University, who concluded that "the Treasury's modeling methodology for valuing the warrants is consistent with industry best practice and the highest academic standards." More information on Treasury's internal valuation modeling and the report written by Dr. Jarrow can be found at www.FinancialStability.gov/roadtostability/CapitalPurchaseProgram.html.

Treasury and its external asset managers use the 20-trading day trailing average stock price of a company in their valuations to minimize the effects of day-to-day market fluctuations. Market participants who provide Treasury with market indications utilize the stock price at the time that they provide the valuation. If the discussions with an institution continue over an extended period of time, Treasury and its external asset managers will update their estimates as necessary. Treasury may also collect new market quotes or adjust the market quotes based on changes in market conditions from when the quotes were collected. (See Appendix II for information on the timing of issuers' bids.)

Determination by Warrant Committee

Based on the range of estimated warrant values provided by these sources, a committee of Treasury officials within the Office of Financial Stability (OFS), who comprise the OFS Warrant Committee, makes a recommendation to the Assistant Secretary for Financial Stability as to whether to agree with the bank's determination of fair market value. Each member of the Warrant Committee and the Assistant Secretary weigh the three valuation metrics as they deem appropriate.

Additional factors presented to the Warrant Committee, along with the three valuation metrics discussed above include:

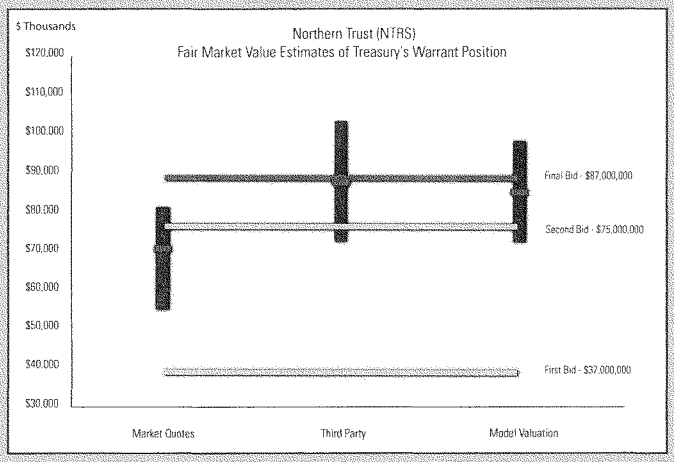
- how quickly Treasury would have to monetize the warrants if the issuer does not repurchase based on legislation in place at the time as discussed in the "Background" section of this report,
- the expertise and experience of the outside consultant providing the third party valuation,
- the quality and number of market indications received,
- any significant movements in the stock price of the issuer since market indications were collected,
- deviations of the current stock price from the 20-trading day trailing average of the company's stock price,
- the size of the warrant position and potential investor interest in the warrants,
- the liquidity of the underlying common stock, and
- fixed transaction costs associated with selling the warrants to a third party.

GRAPHICAL REPRESENTATION OF TREASURY'S WARRANT VALUATION ANALYSIS

Figure 2 demonstrates the three elements of Treasury's warrant valuation analysis together with an institution's bid for the warrants, using Northern Trust Corporation as an example. The market quotes are presented as a range from the low to the high estimate of value provided by market participants (black bar) as well as the average of all the market indications collected (red point). The third party estimate of value (red point) is presented along with a reasonable range (black bar) that is also prepared by the third party. Treasury's estimate of value (red point) based on its internal model is presented along with a reasonable range (black bar). The ranges of estimates presented below show the final estimates utilized by Treasury officials to analyze the bank's final bid.

Appendix III presents charts for all of the CPP warrant sales conducted as of December 31, 2009. As with the example below, all of the valuation estimates presented in Appendix III represent the final estimates used by Treasury officials when analyzing a repurchase request. Appendix III also notes additional relevant factors that were presented to the Warrant Committee.

Figure 2: Example of Treasury's Warrant Valuation Analysis



Repurchases of Warrants

Treasury began the sale of warrants back to banks that had repaid the CPP investment and wanted to repurchase their warrants in May 2009. In aggregate, as of December 31, 2009, Treasury has realized $2.9 billion in gross proceeds from 31 warrant repurchases, which compares favorably to initial bids of $1.7 billion and estimates of aggregate value of $2.2 billion based on market indications, $2.7 billion based on third party estimates, and $2.6 billion based on Treasury's internal financial models.

The initial repurchases that took place in May 2009 and their accompanying warrant valuations should be viewed in light of two factors particular to those transactions. First, the expertise and experience of the outside third parties affected the independent valuations provided. Second, at that time, Treasury was required to liquidate the warrants upon an issuer's repayment pursuant to the terms of ARRA. Although it was not clear how quickly liquidation was required, Treasury believed that sales should be made promptly and attempted to complete sales expeditiously. This standard was later modified by HFSTHA to provide that Treasury "may liquidate" the warrants following repayment. (See Appendix I – Legislative Background.).

In all cases, Treasury has agreed to let an issuer repurchase its warrants only when the issuer's bid was within the range of what Treasury determined to be fair market value.

The table below shows all of the warrant the repurchases as of December 31, 2009, arrayed by amount of proceeds.

Figure 3: Issuer Repurchases of Public Warrants as of December 31, 2009

Institution Name	Ticker	Preferred Redemption Date	Preferred Amount Redeemed ($thousands)	Warrant Repurchase Date	Gross Warrant Proceeds ($thousands)	QEO? (i.e. warrants cut by 50%)
Goldman Sachs Group, Inc.	GS	6/17/09	$10,000,000	7/22/09	$1,100,000	-
Morgan Stanley	MS	6/17/09	10,000,000	8/12/09	950,000	-
American Express Company	AXP	6/17/09	3,388,890	7/29/09	340,000	-
U.S. Bancorp	USB	6/17/09	6,599,000	7/15/09	139,000	-
Bank of New York Mellon	BK	6/17/09	3,000,000	8/5/09	136,000	-
Northern Trust Corporation	NTRS	6/17/09	1,576,000	8/26/09	87,000	-
BB&T Corporation	BBT	6/17/09	3,133,640	7/22/09	67,010	-
State Street Corporation	STT	6/17/09	2,000,000	7/8/09	50,000	Yes
Trustmark Corporation	TRMK	12/9/09	215,000	12/30/09	10,000	-
FirstMerit Corp	FMER	4/22/09	125,000	5/27/09	5,025	-
First Niagra Financial Group	FNFG	5/27/09	184,011	6/24/09	2,700	Yes
Bank of the Ozarks, Inc.	OZRK	11/4/09	75,000	11/24/09	2,650	-
Indpendent Bank Corp	INDB	4/22/09	78,158	5/27/09	2,200	-
Sun Bancorp, Inc.	SNBC	4/8/09	89,310	5/27/09	2,180	-
SCBT Financial Corporation	SCBT	5/20/09	64,779	6/24/09	1,400	-
Bancorp Rhode Island, Inc.	BARI	8/5/09	30,000	9/30/09	1,400	-
CVB Financial Corp.	CVBF	9/2/09	130,000	10/28/09	1,307	Yes
Old National Bancorp	ONB	3/31/09	100,000	5/8/09	1,200	-
IBERIABANK Corporation	IBKC	3/31/09	90,000	5/20/09	1,200	Yes
Berkshire Hills Bancorp	BHLB	5/27/09	40,000	6/24/09	1,040	-
Westbanco, Inc.	WSBC	9/9/09	75,000	12/23/09	950	-
Alliance Financial Corporation	ALNC	5/13/09	26,918	6/17/09	900	-
Flushing Financial Corporation	FFIC	10/28/09	70,000	12/30/09	900	Yes
HF Financial Corp.	HFFC	6/3/09	25,000	6/30/09	650	-
Wainwright Bank and Trust	WAIN	11/24/09	22,000	12/16/09	569	-
LSB Corporation	LSBX	11/18/09	15,000	12/16/09	560	-
Union Bankshares Corporation	UBSH	11/18/09	59,000	12/23/09	450	Yes
Somerset Hills Bancorp	SOMH	5/20/09	7,414	6/24/09	275	-
Old Line Bancshares, Inc.	OLBK	7/15/09	7,000	9/2/09	225	-
CenterState Banks, Inc.	CSFL	9/30/09	27,875	10/28/09	212	Yes
Manhattan Bancorp	MNHN	9/16/09	1,700	10/14/09	63	-
TOTAL	31		$41,255,695		$2,916,586	7

Auctions of Warrants

In the event an issuer does not repurchase its warrants, Treasury sells each institution's warrants as quickly as practicable and, when possible, by public auctions. Treasury's public auctions of CPP warrants began in December 2009 with the auctions of its warrants in JPMorgan Chase & Co., Capital One Financial Corp., and TCF Financial Corporation. These auctions generated $1.109 billion in gross proceeds ($1.092 billion net of underwriting fees). The net proceeds of the auctions exceeded the issuers' bids by an aggregate amount of $217 million. (See tables in Appendix II for details on individual bank's bids and the auction proceeds received.)

Market conditions had changed between the time of the banks' bids to repurchase their warrants directly from Treasury and the commencement of the auctions. In the case of JPMorgan and Capital One Financial, their share prices increased from the time of their bids to the auctions; however, this beneficial effect on the value of the warrants held by Treasury was at least partially offset by declines in the expected future volatility of their stocks. For TCF Financial, both its stock price and the expected future volatility of its stock declined, but Treasury still received about three times as much as the issuer's bid for the warrants. (See Appendix IV for charts detailing the change in stock prices and the implied volatilities of the underlying stock for the three auctioned warrants between the date of the issuer's bid to Treasury and the date of the auction.)

These auctions demonstrate Treasury's ability to dispose of the warrants at fair market values if an issuer chooses not to repurchase.

The table below shows the warrants sold to third parties as of December 31, 2009.

Figure 4: Warrant Auctions

Institution Name	Ticker	Preferred Redemption Date	Preferred Amount Redeemed ($thousands)	Auction Date	Gross Warrant Proceeds ($thousands)	DEO? (i.e. warrants cut by 50%)
JPMorgan Chase & Co	JPM	6/17/09	$25,000,000	12/10/09	$950,318	-
Capital One Financial Corp.	COF	6/17/09	3,555,199	12/3/09	148,731	-
TCF Financial Corporation	TCF	4/22/09	361,172	12/15/09	9,600	-
TOTAL	3		$28,916,371		$1,108,649	0

Modified "Dutch" Auctions

For the first three warrant auctions, Treasury utilized modified "Dutch" auctions to dispose of the warrants. The public auctions were registered under the Securities Act of 1933. Only one bank's warrants were sold in each auction. With advice from its external asset managers and the auction agent, Treasury publicly disclosed a minimum bid and privately set a reserve price for each auction. Bidders were able to submit one or more independent bids at different price-quantity combinations at or above the set minimum price. The auction agent did not provide bidders with any information about the bids of other bidders or auction trends, or with advice regarding bidding strategies, in connection with the auction. The issuers of the warrants were able to bid for their warrants in the auctions. Bids were accepted by the auction agent from 8:00 a.m. to 6:30 p.m. on the day of the auction. The warrants were sold to all winning bids at the uniform price that cleared the auction.

Deutsche Bank Securities Inc. was Treasury's auction agent for the first three auctions. Deutsche Bank received fees equal to approximately 1.5% of the gross proceeds ($16.6 million) which is significantly below typical secondary equity offering fees that run around 3.5% to 4.5% depending on the size of the offering.

For illustrative purposes only, Figures 5 and 6 are example charts of the demand in a theoretical auction of an 8 million share position with a minimum price of $3.00 per share and a clearing price of $5.75 per share.

Figure 5: Illustrative Cumulative Auction Demand by Price

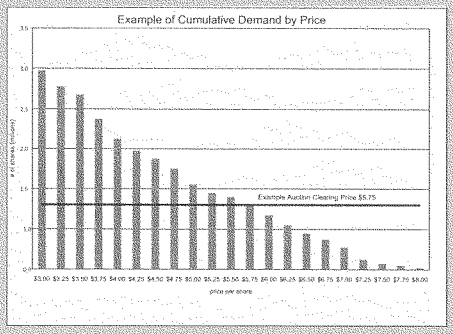
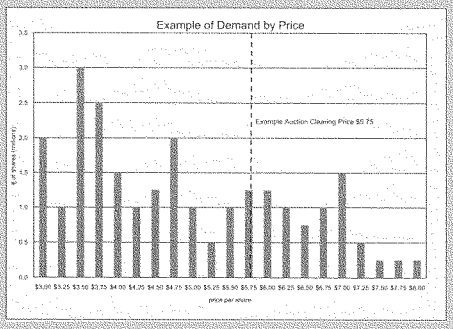


Figure 6: Illustrative Auction Demand by Price



MODIFIED "DUTCH" AUCTIONS

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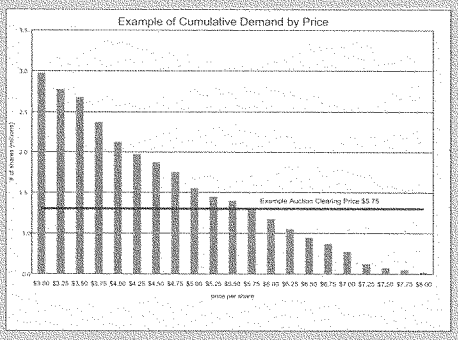
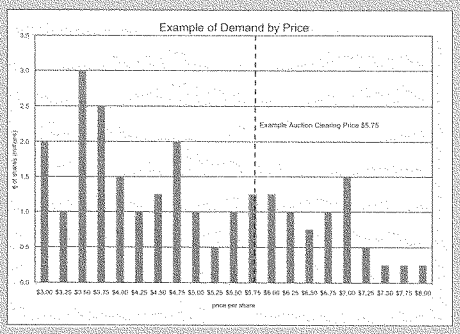


Figure 6: Illustrative Auction Demand by Price



Warrant Portfolio as of December 31, 2009

At the end of 2009, Treasury continued to hold warrants in 18 institutions that have fully redeemed the CPP investment as wells as warrants in 230 public companies that have not repaid.

The table below shows the warrants still held in institutions that have redeemed their CPP investment.

Figure 7: Warrants Held in Institutions that have Fully Redeemed CPP Investment as of December 31, 2009

Institution Name	Ticker	Preferred Repurchase Date	Preferred Investment ($thousands)	Warrant Shares	Strike Price	DEO? (i.e. warrants cut by 50%)
Bank of America Corporation	BAC	12/9/09	$25,000,000	121,702,790	$30.79	
Wells Fargo & Company	WFC	12/23/09	$25,000,000	110,261,688	$34.01	
Valley National Bancorp	VLY	12/23/09	$300,000	2,411,945	$18.86	
SVB Financial Group	SIVB	12/23/09	$235,000	354,058	$49.78	Yes
Washington Federal, Inc.	WFSL	5/27/09	$200,000	1,787,456	$17.57	
Sterling Bancshares, Inc	SBIB	5/6/09	$125,198	2,615,557	$7.18	
Signature Bank	SBNY	3/31/09	$120,000	595,829	$30.21	
F.N.B. Corporation	FNB	9/9/09	$100,000	651,042	$11.52	Yes
Westamerica Bancorporation	WABC	11/18/09	$83,726	246,640	$50.92	
Texas Capital Bancshares, Inc.	TCBI	5/13/09	$75,000	758,086	$14.84	
First Community Bancshares, Inc.	FCBC	7/8/09	$41,500	88,273	$35.26	Yes
OceanFirst Financial Corp.	OCFC	12/30/09	$38,263	190,427	$15.07	Yes
Bank of Marin Bancorp	BMRC	3/31/09	$28,000	154,242	$27.23	
Shore Bancshares, Inc.	SHBI	4/15/09	$25,000	172,970	$21.68	
Middleburg Financial Corporation	MBRG	12/23/09	$22,000	104,101	$15.85	Yes
Monarch Financial Holdings, Inc.	MNRK	12/23/09	$14,700	132,353	$9.33	Yes
LCNB Corporation	LCNB	10/21/09	$13,400	217,063	$9.26	
Commerce National Bank	CNBF	10/7/09	$5,000	67,209	$8.60	
TOTAL:	18		$51,426,787			5

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Appendix I – Legislative Background

Emergency Economic Stabilization Act of 2008 October 3, 2008
http://frwebgate.access.gpo.gov/cgibin/getdoc.cgi?dbname=110_cong_public_laws&docid=f:publ343.110.pdf

Section 113 (d)(1). In general.--The Secretary may not purchase, or make any commitment to purchase, any troubled asset under the authority of this Act, unless the Secretary receives from the financial institution from which such assets are to be purchased---

(A) in the case of a financial institution, the securities of which are traded on a national securities exchange, a warrant giving the right to the Secretary to receive nonvoting common stock or preferred stock in such financial institution, or voting stock with respect to which, the Secretary agrees not to exercise voting power, as the Secretary determines appropriate; or

(B) in the case of any financial institution other than one described in subparagraph (A), a warrant for common or preferred stock, or a senior debt instrument from such financial institution, as described in paragraph (2)(C).

American Recovery and Reinvestment Act of 2009 February 17, 2009
http://frwebgate.access.gpo.gov/cgibin/getdoc.cgi?dbname=111_cong_public_laws&docid=f:publ005.111.pdf

Section 7001. "(g) NO IMPEDIMENT TO WITHDRAWAL BY TARP RECIPIENTS.--- Subject to consultation with the appropriate Federal banking agency (as that term is defined in section 3 of the Federal Deposit Insurance Act), if any, the Secretary shall permit a TARP recipient to repay any assistance previously provided under the TARP to such financial institution, without regard to whether the financial institution has replaced such funds from any other source or to any waiting period, and when such assistance is repaid, the Secretary shall liquidate warrants associated with such assistance at the current market price."

Helping Families Save Their Homes Act of 2009 May 20, 2009
http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_public_laws&docid=f:publ022.111.pdf

Section 403. REMOVAL OF REQUIREMENT TO LIQUIDATE WARRANTS UNDER THE TARP. Section 111(g) of the Emergency Economic Stabilization Act of 2008 (12 U.S.C. 5221(g)) is amended by striking "shall liquidate warrants associated with such assistance at the current market price" and inserting ", at the market price, may liquidate warrants associated with such assistance".

Appendix II – Detailed Tables of Warrant Repurchases and Auctions

Issuer Bids and Warrant Sales Ordered by Sale Date

Company	Ticker	CPP Preferred ($thousands)	Redempt Date	Issuer Bids: Bid #1	Bid #2	Bid #3	Bid #4	Final Price ($thousands)	Date of Issuer Bids: Bid #1	Bid #2	Bid #3	Bid #4	Warrant Repurchase Date
Old National Bancorp	ONB	3,100,000	3/31/09	$559	$1,300			$1,200	4/15/09	5/8/09			5/6/09
IBERIABANK Corporation	IBKC	90,000	3/31/09	620	1,200			1,200	4/14/09	5/12/09			5/20/09
Sun Bancorp, Inc.	SNBC	89,310	4/8/09	1,049	2,100			2,100	4/21/09	5/19/09			5/27/09
FirstMerit Corp.	FMER	125,000	4/22/09	3,186	5,025			5,025	5/15/09	5/21/09			5/27/09
Independent Bank Corp.	INDB	78,158	4/22/09	880	2,200			2,200	5/2/09	5/21/09			5/27/09
Alliance Financial Corporation	ALNC	26,818	5/13/09	329	900			900	5/26/09	6/12/09			6/17/09
SCBT Financial Corporation	SCBT	64,779	5/20/09	694	1,400			1,400	6/3/09	6/15/09			6/24/09
Berkshire Hills Bancorp	BHLB	40,000	5/27/09	875	1,040			1,040	6/8/09	6/17/09			6/24/09
Somerset Hills Bancorp	SOMH	7,414	5/20/09	193	275			275	6/4/09	6/17/09			6/24/09
First Niagara Financial Group	FNFG	184,011	5/27/09	1,500	2,700			2,700	6/4/09	6/19/09			6/24/09
HF Financial Corp.	HFFC	25,000	6/3/09	465	600	650		650	6/9/09	6/29/09	6/23/09		6/30/09
State Street Corporation	STT	2,000,000	6/17/09	60,000				60,000	6/22/09				7/6/09
U.S. Bancorp	USB	6,599,000	6/17/09	115,000	131,000	139,000		139,000	6/18/09	7/1/09	7/8/09		7/15/09
BB&T Corporation	BBT	3,133,640	6/17/09	20,854	41,707	64,825	67,010	67,010	6/24/09	7/8/09	7/14/09	7/14/09	7/22/09
Goldman Sachs Group, Inc.	GS	$10,000,000	6/17/09	600,000	900,000	1,100,000		1,100,000	6/17/09	7/20/09	7/21/09		7/22/09
American Express Company	AXP	3,388,890	6/17/09	230,000	280,000	340,000		340,000	7/1/09	7/20/09	7/27/09		7/29/09
Bank of New York Mellon	BK	3,000,000	6/17/09	79,000	118,000	130,000	136,000	136,000	6/30/09	7/29/09	7/30/09	7/31/09	8/5/09
Morgan Stanley	MS	10,000,000	6/17/09	500,000	800,000	900,000	950,000	950,000	6/30/09	8/3/09	8/4/09	8/5/09	8/12/09
Northern Trust Corporation	NTRS	1,576,000	6/17/09	37,000	75,000	87,000		87,000	6/16/09	8/17/09	8/19/09		8/26/09
Old Line Bancshares, Inc.	OLBK	7,000	7/15/09	175	205	225		225	7/29/09	8/19/09	8/20/09		9/2/09
Bancorp Rhode Island, Inc.	BARI	30,000	8/5/09	857	1,125	1,400		1,400	8/19/09	9/16/09	9/21/09		9/30/09
Manhattan Bancorp	MNHN	1,700	9/16/09	63				63	9/25/09				10/14/09
CenterState Banks, Inc.	CSFL	27,675	9/30/09	169	212			212	10/6/09	10/20/09			10/28/09
CVB Financial Corp.	CVBF	130,000	9/2/09	1,002	1,307			1,307	9/17/09	10/21/09			10/28/09
Bank of the Ozarks, Inc.	OZRK	75,000	11/4/09	2,151	2,650			2,650	11/5/09	11/19/09			11/24/09
Wainwright Bank and Trust	WAIN	22,000	11/24/09	569				569	12/3/09				12/16/09
LSB Corporation	LSBX	15,000	11/18/09	500	560			560	12/4/09	12/9/09			12/16/09
Westbanco, Inc.	WSBC	75,000	9/9/09	625	950	950		950	9/22/09	10/20/09	12/11/09		12/23/09
Union Bankshares Corporation	UBSH	59,000	11/18/09	400	450			450	11/24/09	12/16/09			12/23/09
Flushing Financial Corporation	FFIC	70,000	10/28/09	597	700	880	900	900	11/10/09	12/14/09	12/23/09	12/28/09	12/30/09
Trustmark Corporation	TRMK	215,000	12/9/09	8,167	9,200	9,600	10,000	10,000	12/23/09	12/28/09	12/28/09	12/29/09	12/30/09
Total		$41,255,695		$1,667,679				$2,916,986					

Note: The first bid date is the date that an issuer submitted its bid. Subsequent bid dates are the dates the Warrant Committee met to consider those bids.

Company	Ticker	CPP Preferred ($thousands)	Redemption Date	Issuer Bids: Bid #1	Bid #2	Bid #3	Bid #4	Auction Proceeds ($thousands)	Date of Issuer Bids: Bid #1	Bid #2	Bid #3	Bid #4	Auction Date
Capital One Financial Corp.	COF	3,555,199	6/17/09	46,500				148,731	6/30/09				11/3/09
JPMorgan Chase & Co.	JPM	25,000,000	6/17/09	825,539				950,318	8/17/09				12/10/09
TCF Financial Corporation	TCB	361,172	4/22/09	3,200				9,600	5/5/09				12/15/09
Total		28,916,371		875,239				1,108,649					

Warrant Sales Ordered by Amount of Proceeds

Institution Name	Ticker	Decision Date	Payment Date	Expiration Date	Strike Price	QEO? (i.e. warrants cut by 50%)	Final Warrant Shares	Warrant Repurchase Price/Share	Warrant Repurchase Proceeds	Estimated Implied Volatility*	Decision Date: Stock Price	Decision Date: 20-day Avg Stock Price	Decision Date: Warrant Price / Stock Price	Decision Date: Underlying / Strike
Goldman Sachs Group, Inc.	GS	7/21/09	7/22/09	10/28/18	$122.90	-	12,205,045	$90.13	$1,100,000,000	40.6% - 44.5%	$159.80	$148.16	0.56	1.30 x
Morgan Stanley	MS	8/5/09	8/12/09	10/28/18	22.99	-	65,245,759	14.56	950,000,000	33.3% - 39.7%	31.05	26.16	0.47	1.35 x
American Express Company	AXP	7/27/09	7/29/09	1/9/19	20.55	-	24,264,129	14.01	340,000,000	37.6% - 40.7%	28.38	25.71	0.49	1.35 x
U.S. Bancorp	USB	7/8/09	7/15/09	11/14/18	30.29	-	32,979,102	4.25	139,000,000	39.9% - 42.6%	16.58	17.65	0.25	0.55 x
Bank of New York Mellon	BK	7/31/09	8/5/09	10/28/18	31.00	-	14,516,129	9.37	136,000,000	35.7% - 39.6%	27.34	27.98	0.34	0.88 x
Northern Trust Corporation	NTRS	8/19/09	8/26/09	11/14/18	61.81	-	3,624,624	22.75	87,000,000	31.1% - 35.9%	60.38	60.00	0.38	0.98 x
BB&T Corporation	BBT	7/14/09	7/22/09	11/14/18	33.81	-	13,902,573	4.82	67,010,402	32.0% - 36.1%	21.65	21.64	0.22	0.64 x
State Street Corporation	STT	7/1/09	7/8/09	10/28/18	53.00	Yes	2,788,104	21.52	60,000,000	37.9% - 43.8%	47.35	46.98	0.45	0.98 x
Trustmark Corporation	TRMK	12/29/09	12/30/09	11/21/18	19.57	-	1,647,931	6.07	10,000,000	19.0% - 22.9%	22.80	20.84	0.27	1.17 x
FirstMerit Corp.	FMER	5/21/09	5/27/09	1/9/19	19.69	-	952,280	5.28	5,025,000	34.9% - 38.3%	17.54	19.27	0.30	0.89 x
First Niagara Financial Group	FNFG	6/19/09	6/24/09	11/21/18	14.48	Yes	953,096	2.83	2,700,000	28.5% - 31.7%	11.93	12.05	0.24	0.82 x
Bank of the Ozarks, Inc.	OZRK	11/16/09	11/24/09	12/12/18	23.62	-	379,811	6.98	2,650,000	20.9% - 25.1%	27.48	24.46	0.25	0.93 x
Independent Bank Corp.	INDB	5/21/09	5/27/09	1/9/19	24.34	-	481,064	4.57	2,200,000	28.5% - 31.8%	19.60	19.92	0.23	0.81 x
Sun Bancorp, Inc.	SNBC	5/19/09	5/27/09	1/9/19	8.27	-	1,600,545	1.30	2,100,000	16.0% - 19.9%	6.25	6.36	0.21	0.76 x
Bancorp Rhode Island	BARI	9/21/09	9/30/09	12/19/18	23.32	-	192,967	7.26	1,400,000	21.9% - 26.8%	24.66	25.57	0.29	1.06 x
SCBT Financial Corporation	SCBT	6/16/09	6/24/09	1/16/19	32.06	-	303,083	4.62	1,400,000	24.1% - 27.4%	23.16	23.45	0.20	0.72 x
CVB Financial Corp.	CVBF	10/21/09	10/28/09	12/5/18	11.08	Yes	834,761	1.57	1,307,000	26.4% - 29.2%	8.81	7.73	0.18	0.79 x
IBERIABANK Corporation	IBKC	5/12/09	5/20/09	12/5/18	48.74	Yes	138,450	8.68	1,200,000	17.5% - 20.8%	47.22	48.23	0.18	0.97 x
Old National Bancorp	ONB	5/6/09	5/8/09	12/12/18	18.45	-	813,008	1.48	1,200,000	20.3% - 23.6%	14.33	14.18	0.10	0.78 x
Berkshire Hills Bancorp	BHLB	6/17/09	6/24/09	12/19/18	26.51	-	226,330	4.60	1,040,000	24.0% - 28.0%	20.17	21.38	0.23	0.76 x
Westbanco, Inc.	WSBC	12/11/09	12/23/09	12/5/18	25.61	-	439,262	2.16	950,000	38.1% - 40.7%	12.41	12.71	0.17	0.48 x
Alliance Financial Corporation	ALNC	6/12/09	6/17/09	12/19/18	23.33	-	173,963	5.20	900,000	13.8% - 17.0%	26.61	25.50	0.20	1.14 x
Flushing Financial Corporation	FFIC	12/28/09	12/30/09	12/19/18	13.97	Yes	375,806	2.39	900,000	22.4% - 25.9%	11.73	10.92	0.20	0.84 x
HF Financial Corp.	HFFC	6/29/09	6/30/09	11/21/18	12.40	-	302,419	2.15	650,000	16.3% - 21.5%	11.95	12.08	0.18	0.96 x
Wainwright Bank and Trust	WAIN	12/11/09	12/16/09	12/19/18	8.46	-	390,071	1.46	568,700	27.8% - 30.7%	7.00	6.75	0.21	0.83 x
LSB Corporation	LSBX	12/8/09	12/16/09	12/12/18	10.74	-	209,497	2.67	560,000	27.1% - 29.3%	11.28	11.00	0.24	1.05 x
Union Bankshares Corporation	UBSH	12/16/09	12/23/09	12/19/18	20.94	Yes	211,318	2.13	450,000	30.3% - 33.0%	11.93	11.93	0.18	0.57 x
Somerset Hills Bancorp	SOMH	6/17/09	6/24/09	1/16/19	6.82	-	163,065	1.69	275,000	14.6% - 18.4%	7.80	7.73	0.22	1.14 x
Old Line Bancshares	OLBK	8/20/09	9/2/09	12/5/18	7.40	-	141,892	1.59	225,000	26.3% - 30.1%	6.10	6.21	0.26	0.82 x
CenterState Banks, Inc.	CSFL	10/21/09	10/28/09	11/21/18	16.67	Yes	126,413	1.69	212,000	34.9% - 38.2%	7.47	7.64	0.23	0.45 x
Manhattan Bancorp	MNHN	10/9/09	10/14/09	12/5/18	8.65	-	28,480	2.15	63,304	23.7% - 34.8%	6.60	6.53	0.33	0.76 x
TOTAL	31	-	-	-	-	7	-	-	$2,916,986,466	-	-	-	-	-

* Volatility implied by the repurchase price using stock price on decision date and UST estimates for dividend yield and borrow cost; reflects discounts to a modeled valuation for illiquidity, risk of cash takeout, etc.

Institution Name	Ticker	Announce Date	Auction Date	Expiration Date	Strike Price	QEO? (i.e. warrants cut by 50%)	Warrant Shares	Warrant Auction Price Per Share	Warrant Auction Gross Proceeds	Estimated Implied Volatility*	Decision Date: Stock Price	Decision Date: 20-day Avg Stock Price	Decision Date: Warrant Price / Stock Price	Decision Date: Underlying / Strike
JPMorgan Chase & Co.	JPM	12/8/09	12/10/09	10/28/18	$42.42	-	88,401,697	$10.75	$950,318,243	23.8% - 27.5%	$41.27	$42.24	0.26	0.97 x
Capital One Financial Corp.	COF	12/1/09	12/3/09	11/14/18	42.13	-	12,657,960	11.75	148,731,030	34.6% - 38.2%	36.92	38.66	0.32	0.88 x
TCF Financial Corporation	TCB	12/14/09	12/15/09	11/14/18	16.93	-	3,199,988	3.00	9,599,964	26.8% - 32.1%	13.22	12.78	0.23	0.78 x
TOTAL	3	-	-	-	-	0	-	-	$1,108,649,237	-	-	-	-	-

* Volatility implied by the repurchase price using stock price on auction date and UST estimates for dividend yield and borrow cost; reflects discounts to a modeled valuation for illiquidity, risk of cash takeout, etc.

Issuer Repurchases of Warrant Preferreds or Warrant Sub Debt

Institution Name	Repurchase Date	CPP Investment ($thousands)	Warrant Repurchase	Gross Warrant Proceeds ($thousands)
Centra Financial Holdings, Inc.	3/31/09	$15,000	4/15/09	$750
First Manitowoc Bancorp, Inc.	5/27/09	$12,000	5/27/09	600
Midland States Bancorp, Inc.	12/23/09	$10,189	12/23/09	509
1st United Bancorp, Inc.	11/18/09	$10,000	11/18/09	500
First ULB Corp.	4/22/09	$4,900	4/22/09	245
Midwest Regional Bancorp, Inc.	11/10/09	$700	11/10/09	35
TOTAL		$52,789		$2,639

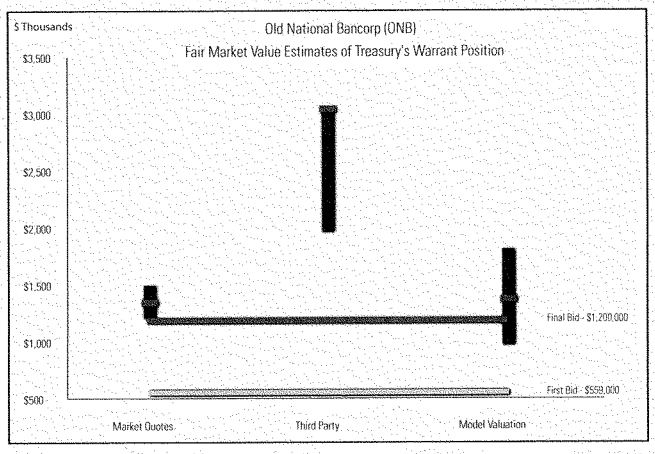
Appendix III – Warrant Disposition Details

Institution	Ticker	Decision Date on Issuer's Final Bid
Old National Bank	ONB	May 6, 2009
IBERIABANK	IBKC	May 12, 2009
Sun Bancorp	SNBC	May 19, 2009
FirstMerit	FMER	May 21, 2009
Indpendent Bank	INDB	May 21, 2009
Alliance Financial	ALNC	June 12, 2009
SCBT Financial	SCBT	June 16, 2009
Berkshire Hills	BHLB	June 17, 2009
Somerset Hills	SOMH	June 17, 2009
First Niagra	FNFG	June 19, 2009
HF Financial	HFFC	June 29, 2009
State Street	STT	July 1, 2009
U.S. Bancorp	USB	July 8, 2009
BB&T	BBT	July 14, 2009
Goldman Sachs	GS	July 21, 2009
American Express	AXP	July 27, 2009
Bank of New York Mellon	BK	July 31, 2009
Morgan Stanley	MS	August 5, 2009
Northern Trust	NTRS	August 19, 2009
Old Line Bancshares	OLBK	August 20, 2009
Bancorp Rhode Island	BARI	September 21, 2009
Manhattan Bancorp	MNHN	October 9, 2009
CenterState Banks, Inc	CSFL	October 20, 2009
CVB Financial	CVBF	October 21, 2009
Bank of the Ozarks	OZRK	November 18, 2009
LSB Corporation	LSBX	December 8, 2009
Wainwright Bank and Trust	WAIN	December 11, 2009
Westbanco, Inc.	WSBC	December 11, 2009
Union Bankshares Corporation	UBSH	December 16, 2009
Flushing Financial Corporation	FFIC	December 28, 2009
Trustmark Corporation	TRMK	December 29, 2009

Institution	Ticker	Auction Date
Capital One Financial	COF	December 3, 2009
JPMorgan	JPM	December 10, 2009
TCF Financial	TCB	December 15, 2009

Old National Bancorp (ONB)
Repurchase of ONB Warrant

On May 6, 2009, Old National Bancorp (ONB) agreed to pay $1.2 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 813,008 shares of ONB at a strike price of $18.45 per share. The warrant had an expiration date of December 12, 2018.

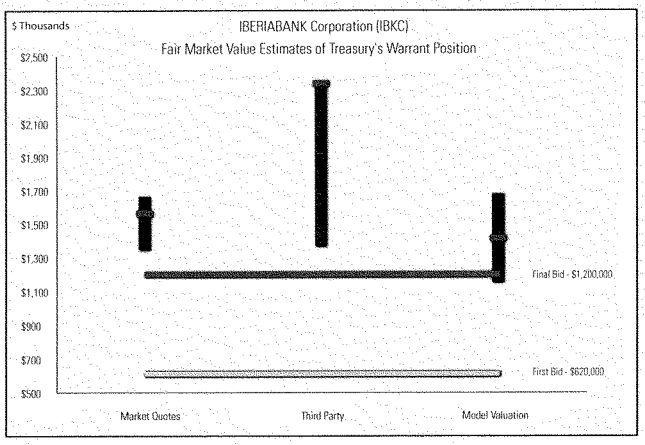


Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$1,220	$1,490	$1,353	Three market indications.
Third Party	$1969	$3,054	$3,054	Binomial option model adjusted for American style options
Model Valuation	$1,070	$1,652	$1,376	Binomial option model adjusted for American style options

NOTE: 1) At the time of the decision, the external asset managers had not been hired. Treasury relied on financial modeling consultants to provide third party input. The modeling consultants may not have had market expertise necessary to make reasonable assumptions for key inputs such as volatility and dividend yield. 2) At that time, legislation may have required that Treasury dispose of the warrants immediately. The fixed cost of disposing of the warrants was taken into consideration when analyzing the company's determination of fair market value.

IBERIABANK Corporation (IBKC)
Repurchase of IBKC Warrant

On May 12, 2009, IBERIABANK Corporation (IBKC) agreed to pay $1.2 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 138,490 shares of IBKC at a strike price of $48.74 per share. The warrant had an expiration date of December 5, 2018.

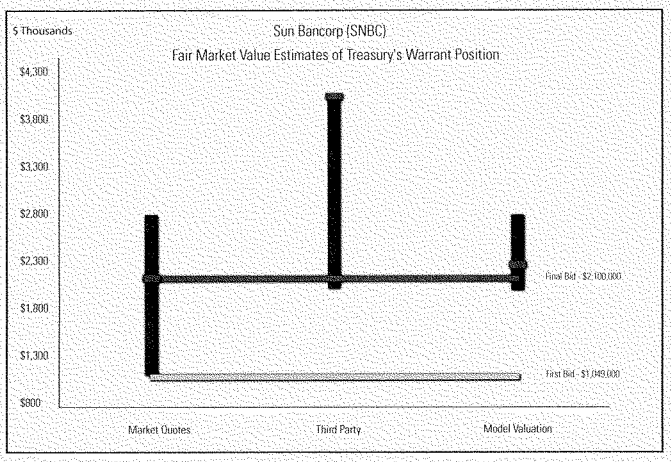


Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$1,350	$1,862	$1,566	Four market indications
Third Party	$1,378	$2,334	$2,334	Binomial option model adjusted for American style options
Model Valuation	$1,156	$1,582	$1,421	Binomial option model adjusted for American style options

NOTE: 1) At the time of the decision, the external asset managers had not been hired. Treasury relied on financial modeling consultants to provide third party input. The modeling consultants may not have had market expertise necessary to make reasonable assumptions for key inputs such as volatility and dividend yield. 2) At that time, legislation may have required that Treasury dispose of the warrants immediately. The fixed cost of disposing of the warrants was taken into consideration when analyzing the company's determination of fair market value.

Sun Bancorp, Inc. (SNBC)
Repurchase of SNBC Warrant

On May 19, 2009, Sun Bancorp, Inc. (SNBC) agreed to pay $2.1 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 1,620,545 shares of SNBC at a strike price of $8.27 per share. The warrant had an expiration date of January 9, 2019.

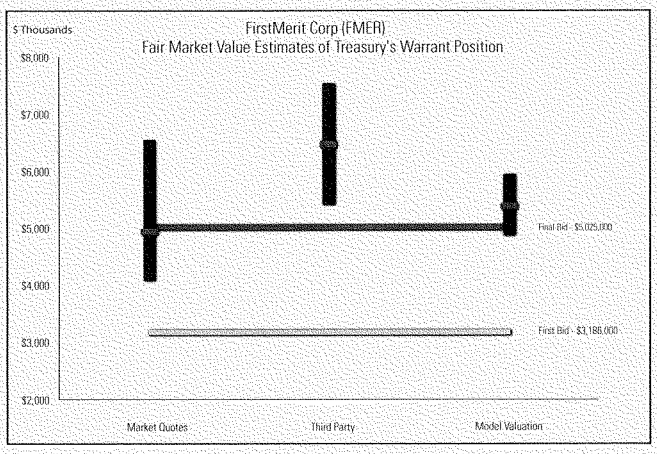


Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$1,080	$2,778	$2,096	Prices market indications
Third Party	$2,000	$4,028	$4,028	Binomial option model adjusted for American style options
Model Valuation	$1,974	$2,771	$2,252	Binomial option model adjusted for American style options

NOTE: The third party valuation assumed volatility of over 50% and provided no discount for the illiquidity, take out risk or bankruptcy. Treasury's volatility inputs more closely reflected market assumptions. Treasury also considered the large size of the SNBC warrant position (7% of outstanding shares) and the relative illiquidity of the stock (the position represented 30X the average trading volume of 60,000 shares) in determining a liquidity discount.

FirstMerit Corp (FMER)
Repurchase of FMER Warrant

On May 21, 2009, FirstMerit Corp (FMER) agreed to pay $5.025 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 952,260 shares of FMER at a strike price of $19.69 per share. The warrant had an expiration date of January 9, 2019.

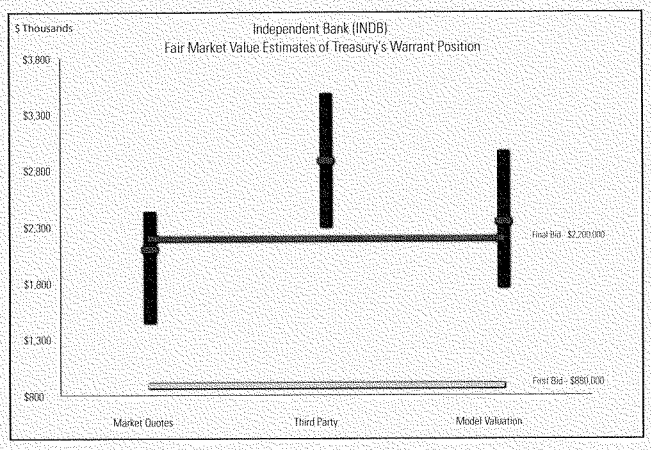


Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$4,082	$6,543	$4,918	four market indications
Third Party	$5,428	$7,532	$6,485	Binomial option model adjusted for American style options
Model Valuation	$4,871	$5,931	$5,400	Binomial option model adjusted for American style options

NOTE: At the time of the decision, the common share price of FMER was $17.54 compared to the 20 day average price of $19.27. This difference was taken under consideration in Treasury's analysis of the company's determination of fair market value.

Independent Bank Corp (INDB)
Repurchase of INDB Warrant

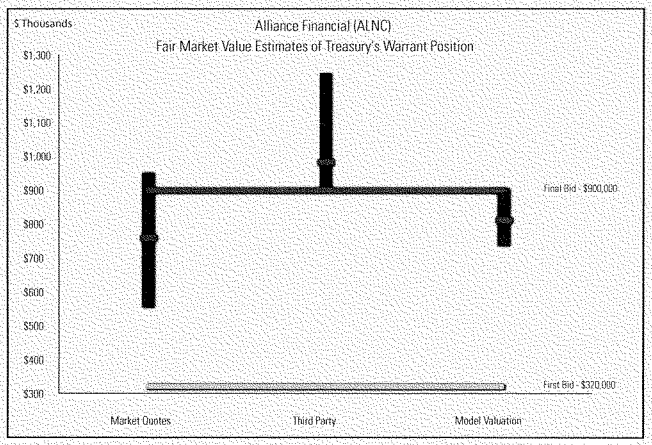
On May 21, 2009, Independent Bank Corp (INDB) agreed to pay $2.2 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 481,664 shares of INDB at a strike price of $24.34 per share. The warrant had an expiration date of January 9, 2019.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$1,444	$2,432	$2,104	Three market indications
Third Party	$2,293	$3,482	$2,865	Binomial option model adjusted for American style options
Model Valuation	$1,794	$2,865	$2,346	Binomial option model adjusted for American style options

Alliance Financial Corporation (ALNC)
Repurchase of ALNC Warrant

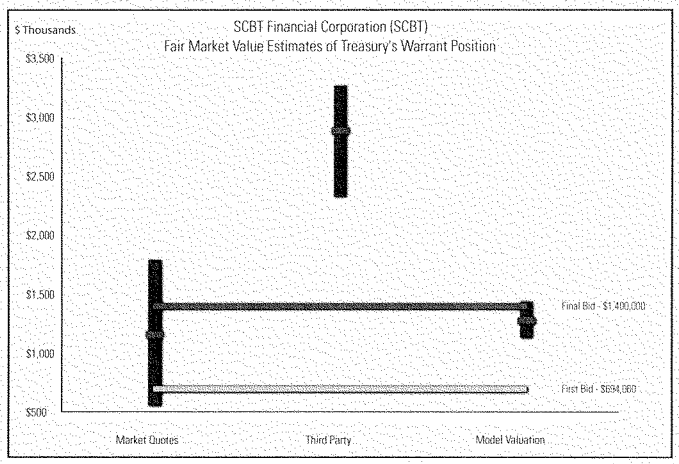
On June 12, 2009, Alliance Financial Corporation (ALNC) agreed to pay $900,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 173,069 shares of ALNC at a strike price of $23.33 per share. The warrant had an expiration day of December 19, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$554	$952	$762	These market indications
Third Party	$899	$1,244	$990	Binomial option model adjusted for American style options
Model Valuation	$741	$895	$818	Binomial option model adjusted for American style options

SCBT Financial Corporation (SCBT)
Repurchase of SCBT Warrant

On June 16, 2009, SCBT Financial Corporation (SCBT) agreed to pay $1.4 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 303,083 shares of SCBT at a strike price of $32.06 per share. The warrant had an expiration date of January 16, 2019.

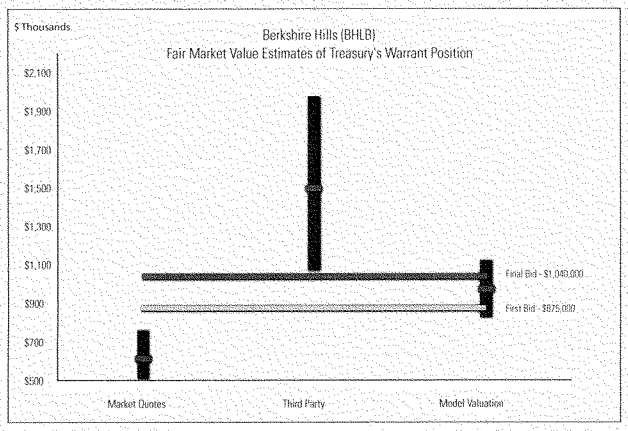


Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$555	$1,789	$1,159	Five market indications
Third Party	$2,322	$3,261	$2,888	Binomial option model adjusted for American style options
Model Valuation	$1,137	$1,436	$1,281	Binomial option model adjusted for American style options

NOTE: The third party modeled valuation assumed volatility of 46%. Treasury's model assumed a significantly lower volatility closer to the historic volatility of the company and observable market prices.

Berkshire Hills Bancorp (BHLB)
Repurchase of BHLB Warrant

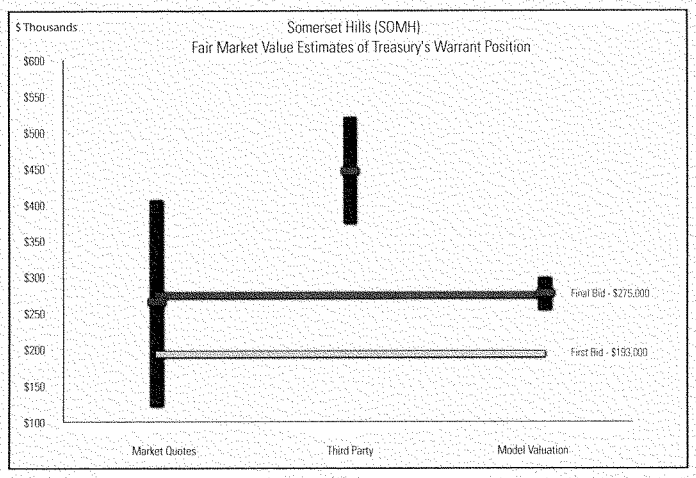
On June 17, 2009, Berkshire Hills Bancorp (BHLB) agreed to pay $1.04 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 226,330 shares of BHLB at a strike price of $26.51 per share. The warrant had an expiration date of December 19, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$589	$750	$611	Three market indications
Third Party	$1,071	$1,974	$1,494	Binomial option model adjusted for American style options
Model Valuation	$827	$1,116	$973	Binomial option model adjusted for American style options

Somerset Hills Bancorp (SOMH)
Repurchase of SOMH Warrant

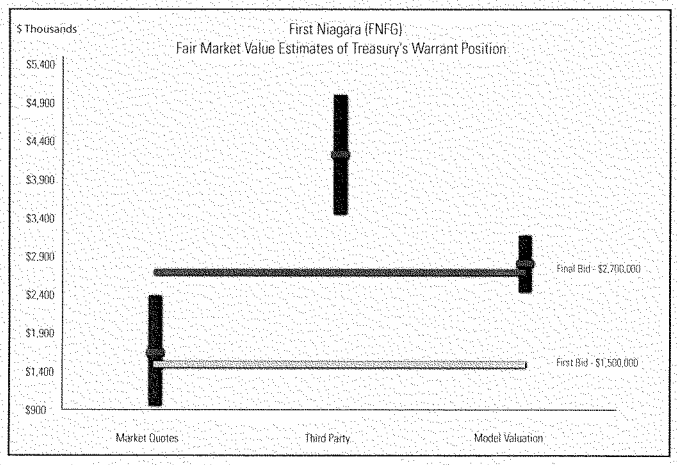
On June 17, 2009, Somerset Hills Bancorp (SOMH) agreed to pay $275,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 163,065 shares of SOMH at a strike price of $6.82 per share. The warrant had an expiration date of January 16, 2019.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$122	$408	$266	Five market indications
Third Party	$374	$521	$447	Binomial option model adjusted for American style options
Model Valuation	$253	$299	$276	Binomial option model adjusted for American style options

First Niagara Financial Group (FNFG)
Repurchase of FNFG Warrant

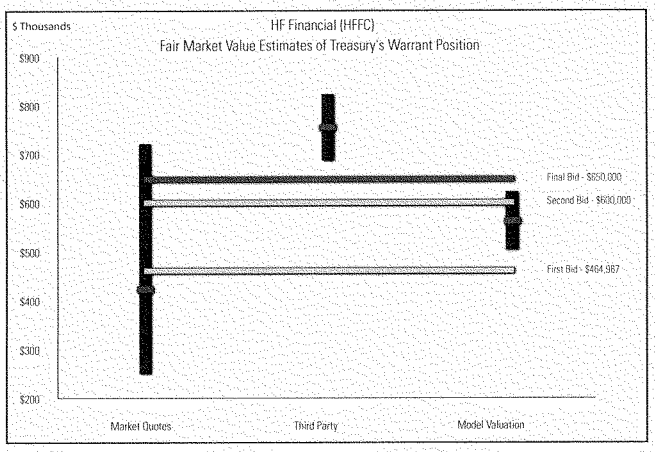
On June 19, 2009, First Niagara Financial Group (FNFG) agreed to pay $2.7 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 953,096 shares of FNFG at a strike price of $14.48 per share. The warrant had an expiration date of November 21, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$953	$2,383	$1,646	Live market indications.
Third Party	$3,455	$4,995	$4,221	Binomial option model adjusted for American style options
Model Valuation	$2,444	$3,175	$2,807	Binomial option model adjusted for American style options

HF Financial Corp (HFFC)
Repurchase of HFFC Warrant

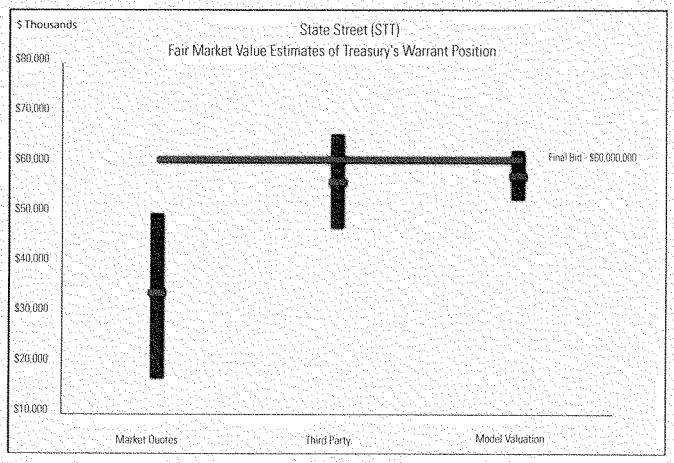
On June 29, 2009, HF Financial Corp (HFFC) agreed to pay $650,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 302,419 shares of HFFC at a strike price of $12.40 per share. The warrant had an expiration date of November 21, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$251	$770	$474	Three market indications
Third Party	$686	$822	$753	Binomial option model adjusted for American style options
Model Valuation	$615	$692	$653	Binomial option model adjusted for American style options

State Street Corporation (STT)
Repurchase of STT Warrant

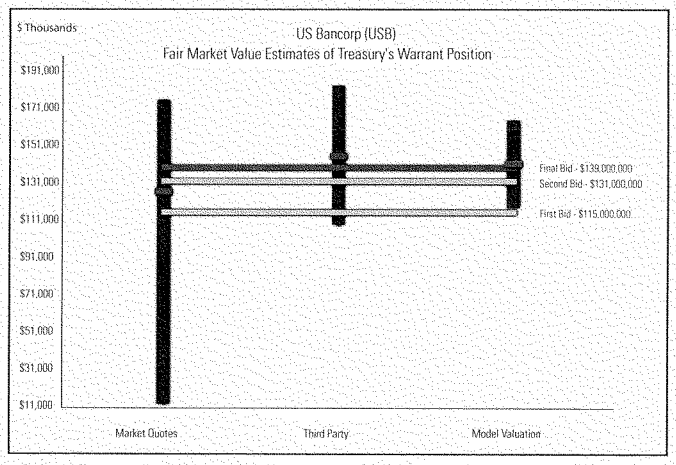
On July 1, 2009, State Street Corporation (STT) agreed to pay $60 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 2,788,104 shares of STT at a strike price of $53.80 per share. The warrant had an expiration date of October 28, 2018.



Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$16	$48	$33	Seven market indications
Third Party	$46	$65	$55	Binomial option model adjusted for American style options
Model Valuation	$52	$62	$57	Binomial option model adjusted for American style options

U.S. Bancorp (USB)
Repurchase of USB Warrant

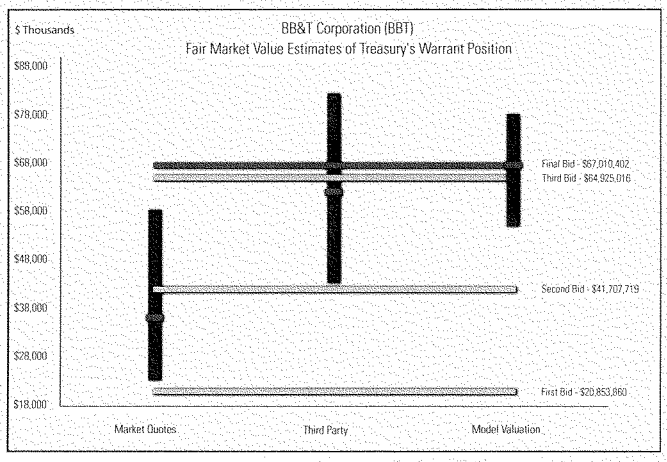
On July 8, 2009, U.S. Bancorp (USB) agreed to pay $139 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 32,679,102 shares of USB at a strike price of $30.29 per share. The warrant had an expiration date of November 14, 2018.



Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$12	$175	$177	Six market indications
Third Party	$108	$183	$144	Binomial option model adjusted for American style options
Model Valuation	$117	$164	$140	Binomial option model adjusted for American style options

BB&T Corporation (BBT)
Repurchase of BBT Warrant

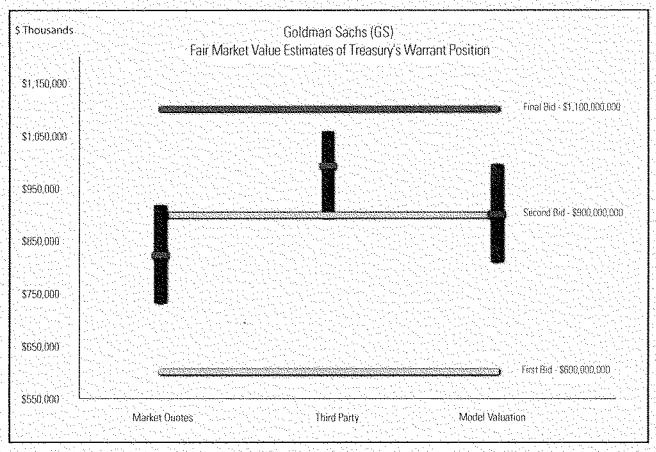
On July 14, 2009, BB&T Corporation (BBT) agreed to pay $67 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 13,902,573 shares of BBT at a strike price of $33.81 per share. The warrant had an expiration date of November 14, 2018.



Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$23	$59	$36	Five market indications
Third Party	$43	$82	$62	Binomial option model adjusted for American style options
Model Valuation	$55	$78	$67	Binomial option model adjusted for American style options

Goldman Sachs Group, Inc. (GS)
Repurchase of GS Warrant

On July 21, 2009, Goldman Sachs Group, Inc. (GS) agreed to pay $1.1 billion for the warrant held by Treasury which entitled the holder of the warrant to purchase 12,205,045 shares of GS at a strike price of $122.90 per share. The warrant had an expiration date of October 28, 2018.

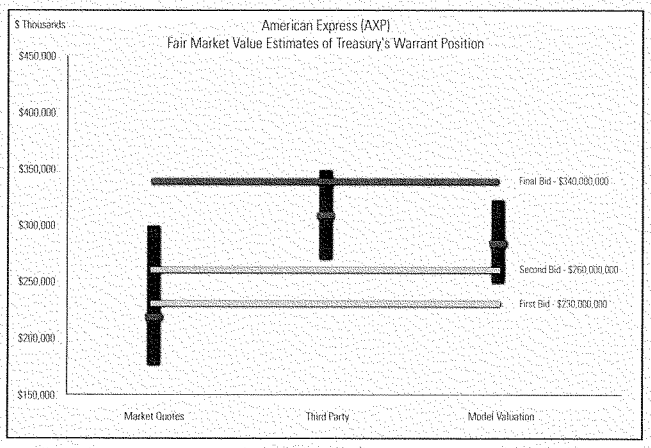


Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$732	$917	$826	Seven market indications.
Third Party	$889	$1,038	$963	Binomial option model adjusted for American style options
Model Valuation	$808	$995	$902	Binomial option model adjusted for American style options

NOTE: At the time of the decision, the common share price of GS was $159.80 compared to the 20-day average price of $148.16. This difference was taken under consideration in Treasury's analysis of the company's determination of fair market value.

American Express Company (AXP)
Repurchase of AXP Warrant

On July 27, 2009, American Express Company (AXP) agreed to pay $340 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 24,264,129 shares of AXP at a strike price of $20.95 per share. The warrant had an expiration date of January 9, 2019.

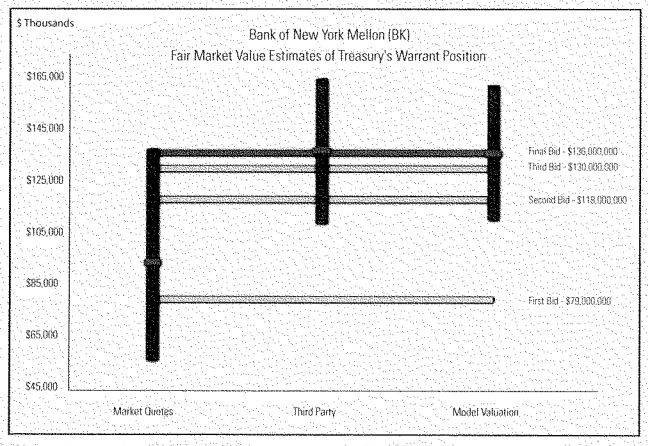


Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$175	$298	$219	Six market indicatives
Third Party	$289	$343	$309	Binomial option model adjusted for American style options
Model Valuation	$248	$322	$285	Binomial option model adjusted for American style options

NOTE: At the time of the decision, the common share price of AXP was $28.32 compared to the 20-day average price of $25.71. This difference was taken under consideration in Treasury's analysis of the company's determination of fair market value.

Bank of New York Mellon Corporation (BK)
Repurchase of BK Warrant

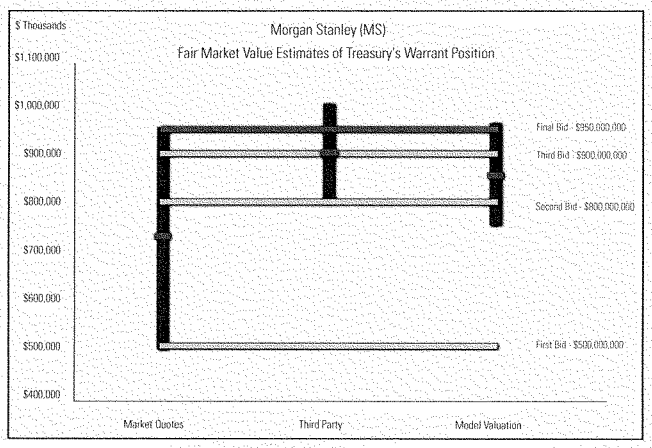
On July 31, 2009, Bank of New York Mellon Corporation (BK) agreed to pay $136 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 14,516,129 shares of BK at a strike price of $31.00 per share. The warrant had an expiration date of October 28, 2018.



Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$55	$137	$94	Seven market indications
Third Party	$108	$164	$136	Binomial option model adjusted for American style options
Model Valuation	$110	$162	$129	Binomial option model adjusted for American style options

Morgan Stanley (MS)
Repurchase of MS Warrant

On August 5, 2009, Morgan Stanley (MS) agreed to pay $950 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 65,245,759 shares of MS at a strike price of $22.99 per share. The warrant had an expiration date of October 28, 2018.

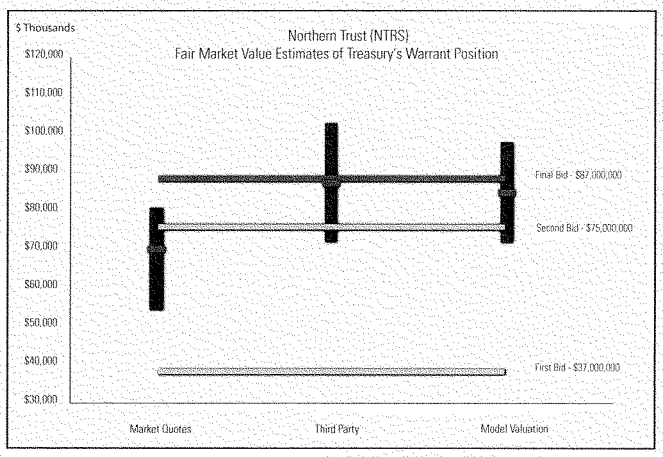


Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$495	$944	$731	Seven market indications
Third Party	$806	$1,002	$900	Binomial option model adjusted for American style options
Model Valuation	$750	$967	$855	Binomial option model adjusted for American style options

NOTE: At the time of the decision, the common share price of MS was $31.05 compared to the 20-day average price of $28.16. This difference was taken under consideration in Treasury's analysis of the company's determination of fair market value.

Northern Trust Corporation (NTRS)
Repurchase of NTRS Warrant

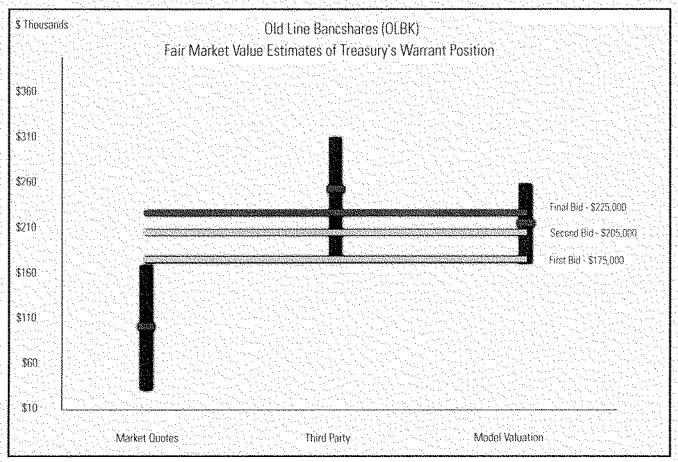
On August 19, 2009, Northern Trust Corporation (NTRS) agreed to pay $87 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 3,824,624 shares of NTRS at a strike price of $61.81 per share. The warrant had an expiration date of November 14, 2018.



Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$54	$80	$69	Six market indications.
Third Party	$71	$101	$86	Binomial option model adjusted for American style options
Model Valuation	$71	$97	$84	Binomial option model adjusted for American style options

Old Line Bancshares, Inc. (OLBK)
Repurchase of OLBK Warrant

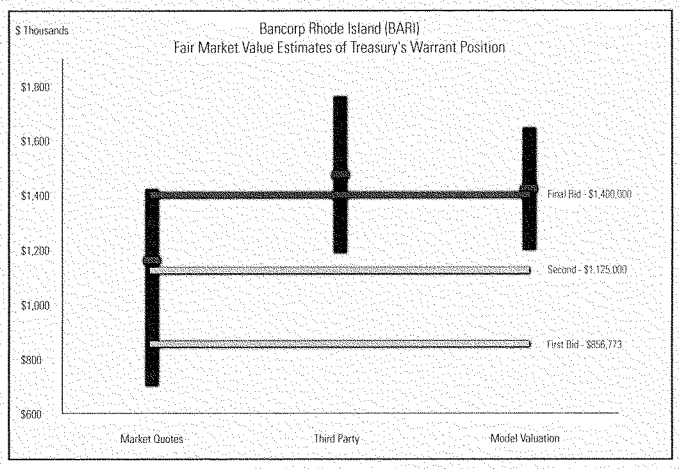
On August 20, 2009, Old Line Bancshares, Inc. (OLBK) agreed to pay $225,000 for the warrants held by Treasury which entitled the holder of the warrant to purchase 141,892 shares of OLBK at a strike price of $7.40 per share. The warrant had an expiration date of December 5, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$28	$167	$102	Four market indications
Third Party	$201	$308	$254	Binomial option model adjusted for American style options
Model Valuation	$172	$257	$214	Binomial option model adjusted for American style options

Bancorp Rhode Island, Inc. (BARI)
Repurchase of BARI Warrant

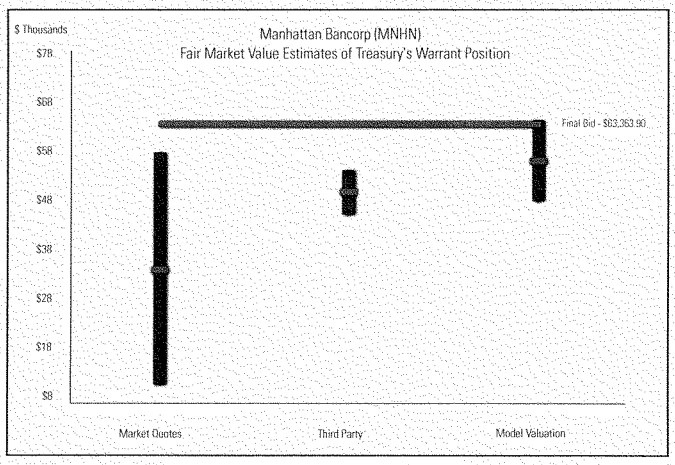
On September 21, 2009, Bancorp Rhode Island, Inc. (BARI) agreed to pay $1.4 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 192,967 shares of BARI at a strike price of $23.32 per share. The warrant had an expiration date of December 19, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$703	$1,427	$1,166	Three market indications
Third Party	$1,196	$1,760	$1,478	Binomial option model adjusted for American style options
Model Valuation	$1,200	$1,643	$1,423	Binomial option model adjusted for American style options

Manhattan Bancorp (MNHN)
Repurchase of MNHN Warrant

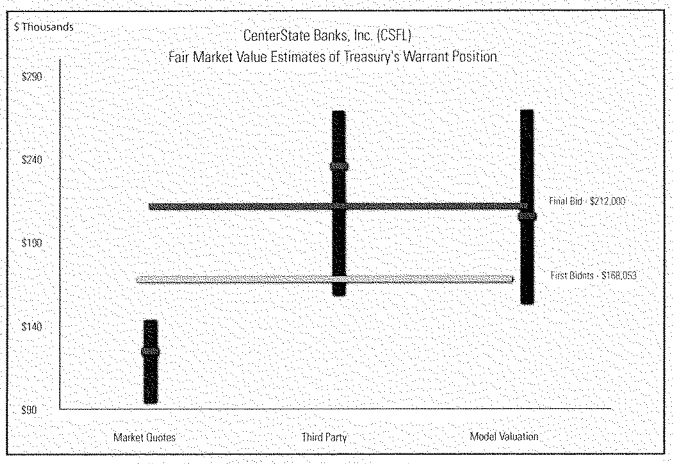
On October 9, 2009, Manhattan Bancorp (MNHN) agreed to pay $63,363.90 for the warrant held by Treasury which entitled the holder of the warrant to purchase 29,480 shares of MNHN at a strike price of $8.65 per share. The warrant had an expiration date of December 5, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$18	$57	$34	Two market indications
Third Party	$45	$54	$50	Binomial option model adjusted for American style options
Model Valuation	$48	$64	$56	Binomial option model adjusted for American style options

CenterState Banks, Inc. (CSFL)
Repurchase of CSFL Warrant

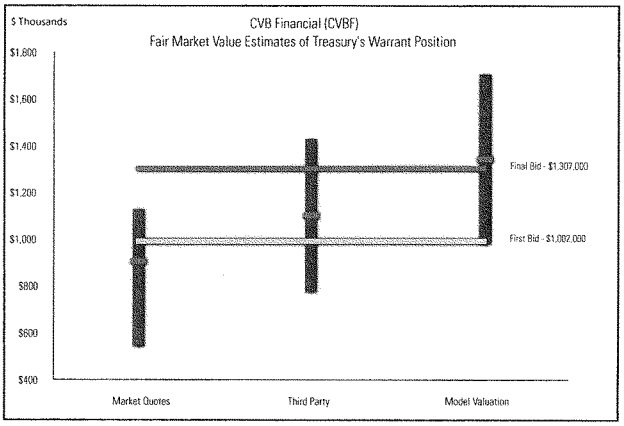
On October 20, 2009, CenterState Banks, Inc. (CSFL) agreed to pay $212,000 for the warrants held by Treasury which entitled the holder of the warrant to purchase 125,413 shares of CSFL at a strike price of $16.67 per share. The warrant had an expiration date of November 21, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$94	$143	$125	Three market indications
Third Party	$159	$268	$236	Binomial option model adjusted for American style options
Model Valuation	$153	$269	$206	Binomial option model adjusted for American style options

CVB Financial Corp. (CVBF)
Repurchase of CVBF Warrant

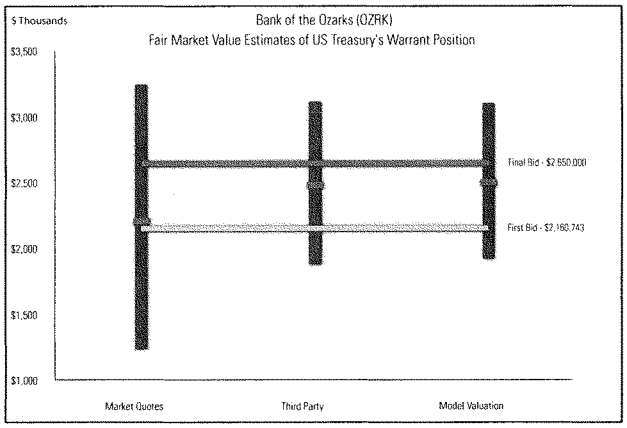
On October 21, 2009, CVB Financial Corp. (CVBF) agreed to pay $1.307 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 834,761 shares of CVBF at a strike price of $11.68 per share. The warrant had an expiration date of December 5, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$551	$1,135	$917	Trade market indications
Third Party	$785	$1,430	$1,110	Binomial option model adjusted for American style options
Model Valuation	$893	$1,711	$1,349	Binomial option model adjusted for American style options

Bank of the Ozarks, Inc. (OZRK)
Repurchase of OZRK Warrant

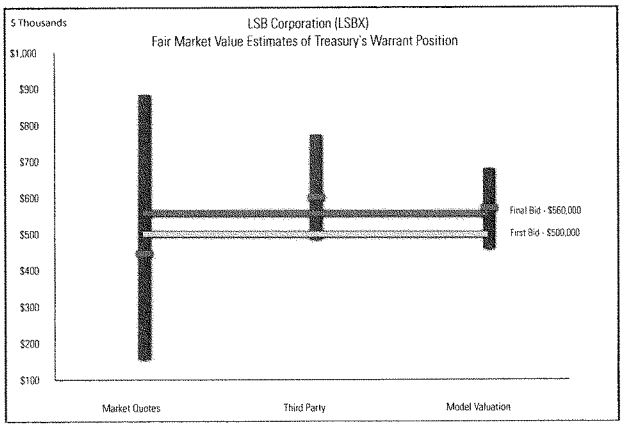
On November 18, 2009, Bank of the Ozarks, Inc. (OZRK) agreed to pay $2.65 million for the warrant held by Treasury which entitled the holder of the warrant to purchase 379,811 shares of OZRK at a strike price of $29.62 per share. The warrant had an expiration date of December 12, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$1,720	$3,240	$2,210	Three market indications
Third Party	$1,880	$3,110	$2,460	Binomial option model adjusted for American style options
Model Valuation	$1,917	$3,095	$2,509	Binomial option model adjusted for American style options

LSB Corporation (LSBX)
Repurchase of LSBX Warrant

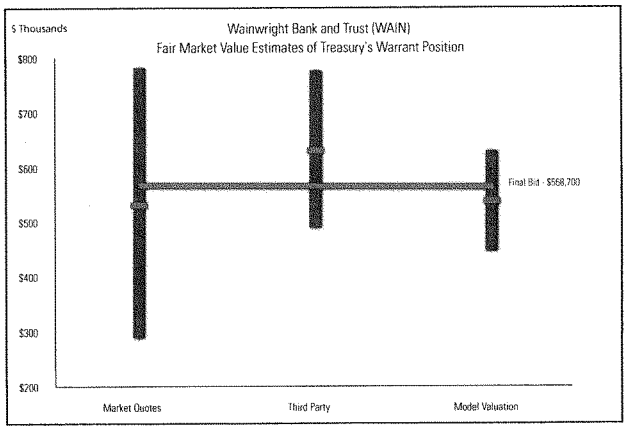
On December 8, 2009, LSB Corporation (LSBX) agreed to pay $560,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 209,497 shares of LSBX at a strike price of $10.74 per share. The warrant had an expiration date of December 12, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$157	$883	$446	Four market indications
Third Party	$488	$773	$605	Binomial option model adjusted for American style options
Model Valuation	$459	$681	$569	Binomial option model adjusted for American style options

Wainwright Bank and Trust Company (WAIN)
Repurchase of WAIN Warrant

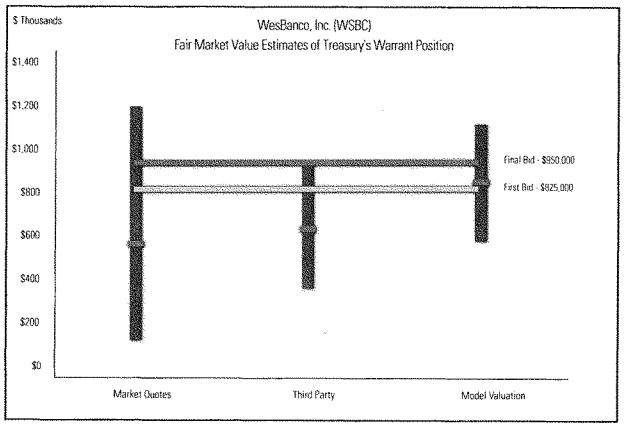
On December 11, 2009, Wainwright Bank and Trust Company (WAIN) agreed to pay $568,700 for the warrants held by Treasury, which entitled the holder of the warrant to purchase 390,071 shares of WAIN at a strike price of $8.46 per share. The warrant had an expiration date of December 19, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$289	$780	$532	Three market indications.
Third Party	$431	$776	$632	Binomial option model adjusted for American style options
Model Valuation	$449	$632	$541	Binomial option model adjusted for American style options

WesBanco, Inc. (WSBC)
Repurchase of WSBC Warrant

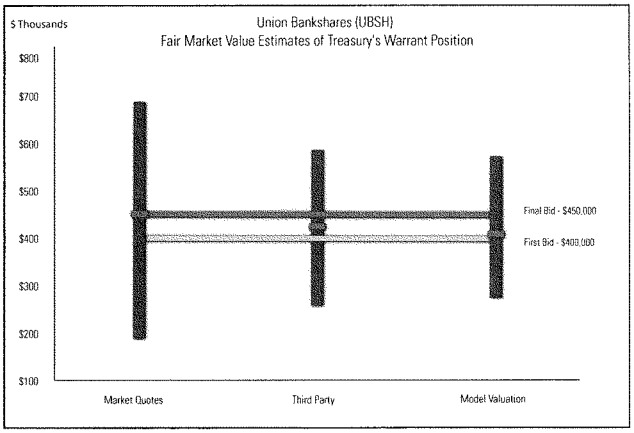
On December 11, 2009, WesBanco, Inc. (WSBC) agreed to pay $950,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 439,282 shares of WSBC at a strike price of $25.61 per share. The warrant had an expiration date of December 5, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$132	$1,204	$577	Four market indications
Third Party	$371	$958	$643	Binomial option model adjusted for American style options
Model Valuation	$585	$1,119	$851	Binomial option model adjusted for American style options

Union Bankshares Corporation (UBSH)
Repurchase of UBSH Warrant

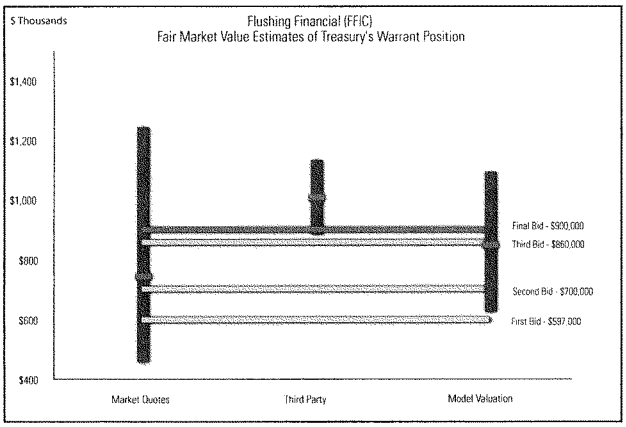
On December 16, 2009, Union Bankshares Corporation (UBSH) agreed to pay $450,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 211,318 shares of UBSH at a strike price of $20.94 per share. The warrant had an expiration date of December 19, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$188	$687	$448	Four market indications
Third Party	$267	$595	$474	Binomial option model adjusted for American style options
Model Valuation	$279	$564	$410	Binomial option model adjusted for American style options

Flushing Financial Corporation (FFIC)
Repurchase of FFIC Warrant

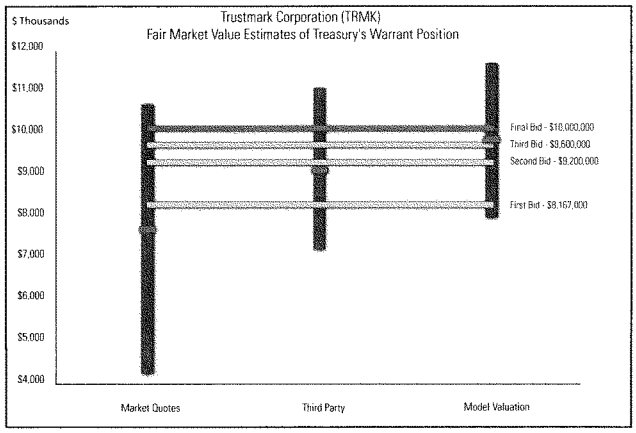
On December 28, 2009, Flushing Financial Corporation (FFIC) agreed to pay $900,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 375,806 shares of FFIC at a strike price of $13.97 per share. The warrant had an expiration date of December 19, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$459	$1,240	$742	Three market indications
Third Party	$883	$1,131	$1,007	Binomial option model adjusted for American style options
Model Valuation	$623	$1,080	$858	Binomial option model adjusted for American style options

Trustmark Corporation (TRMK)
Repurchase of TRMK Warrant

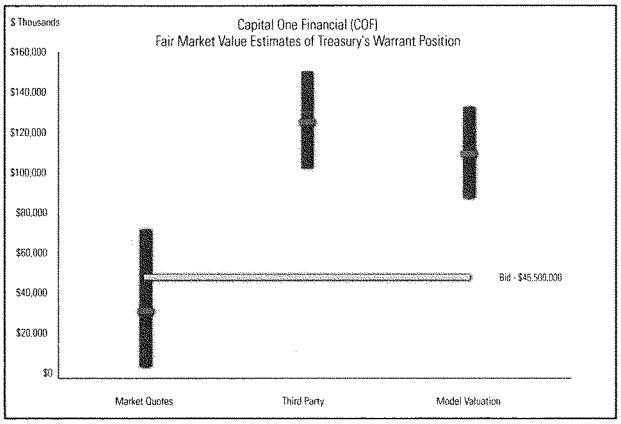
On December 29, 2009, Trustmark Corporation (TRMK) agreed to pay $10,000,000 for the warrant held by Treasury which entitled the holder of the warrant to purchase 1,647,931 shares of TRMK at a strike price of $19.57 per share. The warrant had an expiration date of November 21, 2018.



Valuation Estimates for Warrant ($thousands)	Low	High	Estimate	Details
Market Quotes	$4,120	$10,547	$7,601	Four market indications
Third Party	$7,103	$10,942	$9,014	Binomial option model adjusted for American style options
Model Valuation	$7,876	$11,551	$9,704	Binomial option model adjusted for American style options

Capital One Financial Corp. (COF)
Sale of COF Warrant

On December 3, 2009, Treasury auctioned the Capital One Financial Corp. (COF) warrant for $149 million in gross proceeds. The warrant entitled the holder to purchase 12,657,960 shares of COF at a strike price of $42.13 per share and expired on November 14, 2018.

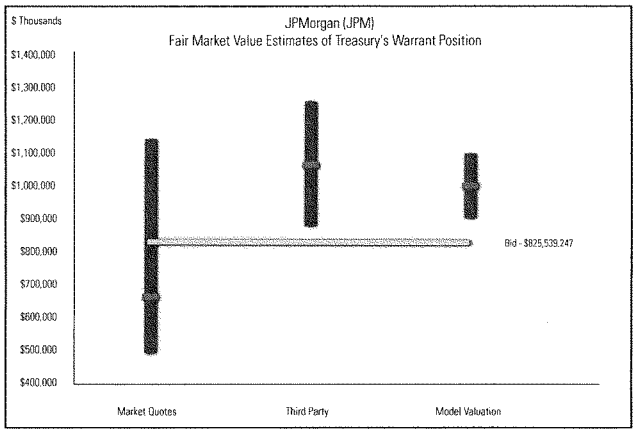


Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$2	$78	$30	Seven market indications.
Third Party	$107	$146	$124	Binomial option model adjusted for American style options
Model Valuation	$86	$131	$108	Binomial option model adjusted for American style options

NOTE: Above analysis was done to evaluate COF's bid on 6/30/09 and is not directly comparable to the auction results on 12/3/09 as market conditions changed over the intervening five months. In particular, COF's stock price appreciated 69% while short-term implied volatility in the stock declined slightly. See charts in Appendix IV.

JP Morgan Chase & Co. (JPM)
Sale of JPM Warrant

On December 10, 2009, Treasury auctioned the JPMorgan Chase & Co. (JPM) for $950 million in gross proceeds. The warrant entitled the holder to purchase 88,401,697 shares of JPM at a strike price of $42.42 per share and expired on October 28, 2018.

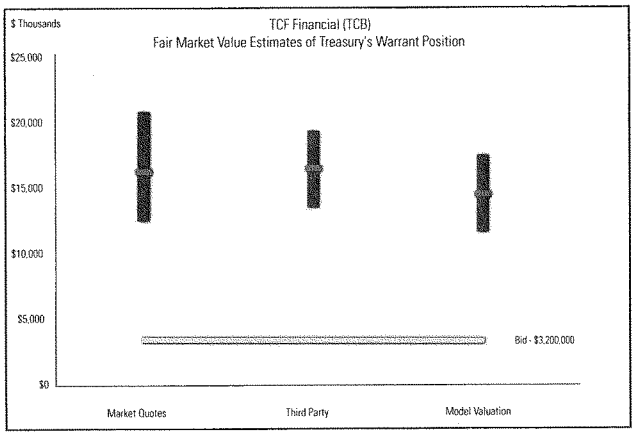


Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$488	$1,137	$856	Seven market indications.
Third Party	$875	$1,252	$1,063	Binomial option model adjusted for American style options
Model Valuation	$930	$1,097	$998	Binomial option model adjusted for American style options

NOTE: Above analysis was done to evaluate JPM's bid on 6/17/09 and is not directly comparable to the auction results on 12/10/09 as market conditions changed over the intervening six months. In particular, JPM's stock price appreciated 26% while short-term implied volatility in the stock declined more than 25%. See charts in Appendix IV.

TCF Financial Corporation (TCB)
Sale of TCB Warrant

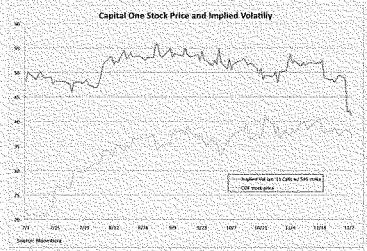
On December 15, 2009, Treasury auctioned the TCF Financial Corporation (TCB) warrant for $9.6 million in gross proceeds. The warrant entitled the holder to purchase 3,199,988 shares of TCB at a strike price of $16.93 per share and expired on November 14, 2018.

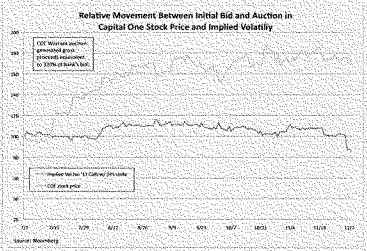


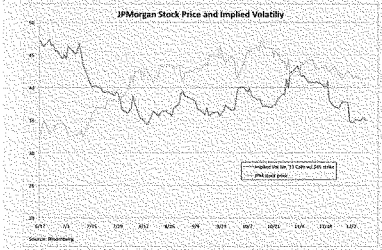
Valuation Estimates for Warrant ($millions)	Low	High	Estimate	Details
Market Quotes	$12.1	$20.5	$15.9	Three market indications.
Third Party	$13.4	$19.1	$16.2	Binomial option model adjusted for American style options
Model Valuation	$11.3	$17.2	$14.3	Binomial option model adjusted for American style options

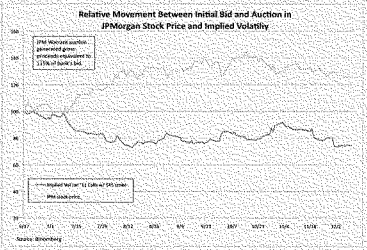
NOTE: Above analysis was done to evaluate TCB's bid on 5/5/09 and is not directly comparable to the auction results on 12/15/09 as market conditions changed over the intervening seven months. In particular, TCB's stock price declined 16% while short-term implied volatility in the stock declined more than 40%. See charts in Appendix IV.

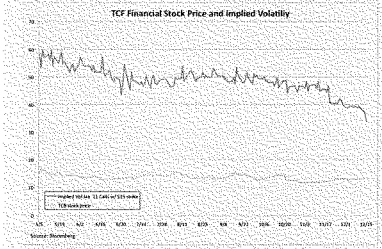
Appendix IV — Changes in Market Conditions from Issuer Bid to Auction

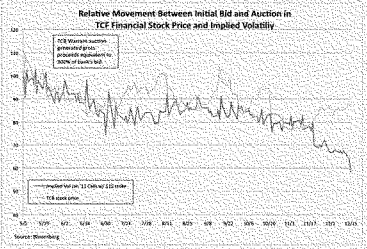










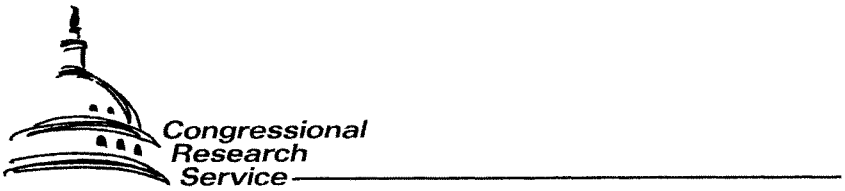


Appendix V – Qualified Equity Offerings Sufficient to Halve Warrants

Institution Name	Ticker	CPP Investment Date	CPP Investment Size ($millions)	Repurchased Date of CPP Investment	CPP Investment Outstanding ($millions)	Warrant Exercise Price	Adjusted Number of Warrant Shares
State Street	STT	10/28/08	2,000.0	6/17/09	-	WARRANT REPURCHASED	
East West Bancorp	EWBC	12/5/08	306.5	N/A	306.5	15.15	1,517,356
PrivateBancorp, Inc.	PVTB	1/30/09	243.8	N/A	243.8	28.35	645,813
SVB Financial Group	SIVB	12/12/08	235.0	12/23/09	-	49.78	354,058
Umpqua Holdings Corp.	UMPQ	11/14/08	214.2	N/A	214.2	14.46	1,110,806
MB Financial Inc.	MBFI	12/5/08	196.0	N/A	196.0	29.05	506,074
First Niagara Financial Group	FNFG	11/21/08	184.0	5/27/09	-	WARRANT REPURCHASED	
United Community Banks, Inc.	UCBI	12/5/08	180.0	N/A	180.0	12.28	1,098,542
National Penn Bancshares, Inc.	NPBC	12/12/08	150.0	N/A	150.0	15.30	735,294
Western Alliance Bancorporation	WAL	11/21/08	140.0	N/A	140.0	13.34	787,107
CVB Financial Corp.	CVBF	12/5/08	130.0	9/2/09	-	WARRANT REPURCHASED	
F.N.B. Corporation	FNB	1/9/09	100.0	9/9/09	-	11.52	651,042
First Busey Corporation	BUSE	3/6/09	100.0	N/A	100.0	13.07	573,833
Pinnacle Financial Partners, Inc.	PNFP	12/12/08	95.0	N/A	95.0	26.64	267,455
Berkshire Bank Corporation	BKC	12/5/08	90.0	3/31/09	-	WARRANT REPURCHASED	
First Financial Bancorp	FFBC	12/23/08	80.0	N/A	80.0	12.90	465,117
Columbia Banking System Inc.	COLB	11/21/08	76.9	N/A	76.9	14.49	398,023
Flushing Financial Corporation	FFIC	12/19/08	70.0	10/28/09	-	WARRANT REPURCHASED	
Nara Bancorp, Inc.	NARA	11/21/08	67.0	N/A	67.0	9.64	521,266
First Financial Holdings Inc.	FFCH	12/5/08	65.0	N/A	65.0	20.17	241,696
Union Bankshares Corporation	UBSH	12/19/08	59.0	11/18/09	-	WARRANT REPURCHASED	
Lakeland Financial Corporation	LKFN	2/27/09	56.0	N/A	56.0	21.20	198,269
Center Financial Corporation	CLFC	12/12/08	55.8	N/A	55.8	9.54	432,390
Home Bancshares, Inc.	HOMB	1/16/09	50.0	N/A	50.0	26.03	144,065
Seacoast Banking Corporation of Florida	SBCF	12/19/08	50.0	N/A	50.0	6.36	589,623
The Bancorp, Inc.	TBBK	12/12/08	45.2	N/A	45.2	3.48	980,393
First Community Bancshares Inc.	FCBC	11/21/08	41.5	7/8/09	-	35.26	88,273
OceanFirst Financial Corp.	OCFC	1/16/09	38.3	12/30/09	-	15.07	190,427
Eagle Bancorp, Inc.*	EGBN	12/5/08	38.2	12/23/09	23.2	7.44	385,434
Centerstate Banks of Florida Inc.	CSFL	11/21/08	27.9	9/30/09	-	WARRANT REPURCHASED	
Washington Banking Company	WBCO	1/16/09	26.4	N/A	26.4	9.04	246,082
Heritage Financial Corporation	HFWA	11/21/08	24.0	N/A	24.0	13.04	138,037
Middleburg Financial Corporation	MBRG	1/30/09	22.0	12/23/09	-	15.95	104,101
MidSouth Bancorp, Inc.	MSL	1/9/09	20.0	N/A	-	14.37	104,384
Bar Harbor Bankshares**	BHB	1/16/09	18.8	N/A	18.8	26.81	52,455
Monarch Financial Holdings, Inc.	MNRK	12/15/08	14.7	12/23/09	-	8.33	132,353
Center Bancorp, Inc.	CNBC	1/9/09	10.0	N/A	10.0	8.65	86,705
Central Valley Community Bancorp	CVCY	1/30/09	7.0	N/A	7.0	6.84	79,067
Total		**38**	**5,327.4**		**2,280.1**		

*Eagle Bancorp has partially redeemed the CPP preferred

** Bar Harbor has not yet provided an official notice of its OFO for Treasury approval.



Government Interventions in Response to Financial Turmoil

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Summary

In August 2007, asset-backed securities, particularly those backed by subprime mortgages, suddenly became illiquid and fell sharply in value as an unprecedented housing boom turned to a housing bust. Financial firms eventually wrote down these losses, depleting their capital. Uncertainty about future losses on illiquid and complex assets led to some firms having reduced access to private liquidity, with the loss in liquidity being fatal in some cases. In September 2008, the financial crisis reached panic proportions, with some large financial firms failing or having the government step in to prevent their failure.

Initially, the government approach was largely an *ad hoc* one, attempting to address the problems at individual institutions on a case-by-case basis. The panic in September 2008 convinced policy makers that a more system-wide approach was needed, and Congress created the Troubled Asset Relief Program (TARP) in October 2008. In addition to TARP, the Federal Reserve (Fed) and Federal Deposit Insurance Corporation (FDIC) implemented broad lending and guarantee programs. Because the crisis had so many causes and symptoms, the response tackled a number of disparate problems, and can be broadly categorized into programs that (1) increased financial institutions' liquidity; (2) provided capital directly to financial institutions for them to recover from asset write-offs; (3) purchased illiquid assets from financial institutions in order to restore confidence in their balance sheets; (4) intervened in specific financial markets that had ceased to function smoothly; and (5) used public funds to prevent the failure of troubled institutions that were deemed "too big to fail" because of their systemic importance.

The primary goal of the various interventions was to end the financial panic and restore normalcy to financial markets. By this measure, the programs were arguably a success—financial markets are largely functioning again, although access to credit is still limited for many borrowers over a year later. The goal of intervening at zero cost to the taxpayers was never realistic, at least initially, or meaningful, since non-intervention would likely have led to a much more costly loss of economic output that indirectly would have worsened the government's finances. Nevertheless, an important part of evaluating the government's performance is whether financial normalcy was restored at a minimum cost to the taxpayers.

Initial government outlays are a poor indicator of taxpayer exposure since outlays were used to acquire or guarantee income-earning debt or equity that can eventually be repaid or sold. For broadly available facilities accessed by financially sound institutions, the risk of default became relatively minor once financial normalcy was restored. At this point, many of the programs that were introduced have either expired or are already shrinking. For these programs, one can estimate with relative confidence approximately how much the programs will ultimately cost (or generate income for) the taxpayers. For a few programs that are still growing in size, and for assistance to firms that are still relying on government support to function, estimates of ultimate gains or losses are more uncertain. The Congressional Budget Office and Office of Management and Budget estimate that most of the government's expected losses are concentrated in a few "too big to fail" firms, such as American International Group (AIG), Fannie Mae, Freddie Mac, and the domestic automakers. Other programs show small expected losses or gains.

This report reviews new programs introduced and other actions taken by the Treasury, Federal Reserve, and Federal Deposit Insurance Corporation. It does not cover longstanding programs such as the Fed's discount window and FDIC receivership of failed banks.

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Introduction

In August 2007, asset-backed securities, particularly those backed by subprime mortgages, suddenly became illiquid and fell sharply in value as an unprecedented housing boom turned to a housing bust. Losses in mortgage markets eventually spilled into other markets. Financial firms eventually wrote down many of these losses, depleting their capital. Uncertainty about future losses on illiquid and complex assets led to some firms having reduced access to private liquidity, with the loss in liquidity being in some cases fatal. Since 2007, the federal government has taken a number of extraordinary steps to address widespread disruption to the functioning of financial markets.

In September 2008, the crisis reached panic proportions. Fannie Mae and Freddie Mac, government-sponsored enterprises (GSEs) who supported a large proportion of the mortgage market, were taken into government conservatorship. Lehman Brothers, a major investment bank, declared bankruptcy. The government acquired most of the equity in American International Group (AIG), one of the world's largest insurers, in exchange for an emergency loan from the Federal Reserve (Fed). These firms were seen by many, either at the time or in hindsight, as "too big to fail" firms whose failure would lead to contagion that would cause financial problems for counterparties or would disrupt the smooth functioning of markets in which the firms operated. One example of such contagion was the failure of a large money market fund holding Lehman Brothers debt that caused a run on many such funds, including several whose assets were sound.

Initially, the government approach was largely an *ad hoc* one, attempting to address the problems at individual institutions on a case-by-case basis. The panic in September 2008 convinced policy makers that a more systemic approach was needed, and Congress enacted the Emergency Economic Stabilization Act (EESA)[1] to create the Troubled Asset Relief Program (TARP) in October 2008. In addition to TARP, the Federal Reserve and Federal Deposit Insurance Corporation (FDIC) implemented broad lending and guaranty programs. Because the crisis had so many causes and symptoms, the response tackled a number of disparate problems, and can be broadly categorized into programs that

- increased institutions' liquidity (access to cash and easily tradable assets), such as direct lending facilities by the Federal Reserve or the FDIC's Temporary Liquidity Guarantee Program;
- provided financial institutions with equity to rebuild their capital following asset write-downs, such as the Capital Purchase Program;
- purchased illiquid assets from financial institutions in order to restore confidence in their balance sheets in the eyes of investors, creditors, and counterparties, such as the Public-Private Partnership Investment Program;
- intervened in specific financial markets that had ceased to function smoothly, such as the Commercial Paper Funding Facility and the Term Asset-Backed Securities Lending Facility;

[1] P.L. 110-343, 12 USC 5311 *et seq.*

- used public funds to prevent the failure of troubled institutions that were deemed "too big to fail" (TBTF) because of their systemic importance, such as AIG, Fannie Mae, and Freddie Mac.

One possible schematic for categorizing the programs discussed in this report into these categories is presented in **Table 1**.

Table 1. Programs Introduced During the Financial Crisis
(by purpose)

Program	Institution Liquidity	Capital Injection	Illiquid Asset Purchase/Guarantee	Market Liquidity	TBTF Assistance
			Treasury		
CPP[a]		X			X
US Automakers[a]	X	X			X
MMMF Guarantee				X	
			Federal Reserve		
TAF	X				
TSLF	X				
PDCF	X				
TALF[a]			X	X	
CPFF/AMLF	X			X	
Bear Stearns			X		X
Liquidity Swaps	X				
			FDIC		
TLGP	X				
			Joint Programs		
PPIP[a]			X		
AIG[a]	X	X			X
GSEs	X	X		X	X
Citigroup[a]		X	X		X
Bank of America[a]		X	X		X

Source: CRS.

Note: See text below for details of these programs.

a. Program using TARP funds.

While many arguments could be made for one particular form of intervention or another, one could also take the position that the form of government support was not particularly important as long as it was done quickly and forcefully because what the financial system lacked in October 2008 was confidence, and any of several options might have restored confidence if it were credible. Some critics dispute that view, arguing that the panic eventually would have ended

without government intervention, and that some specific government missteps exacerbated the panic.[2]

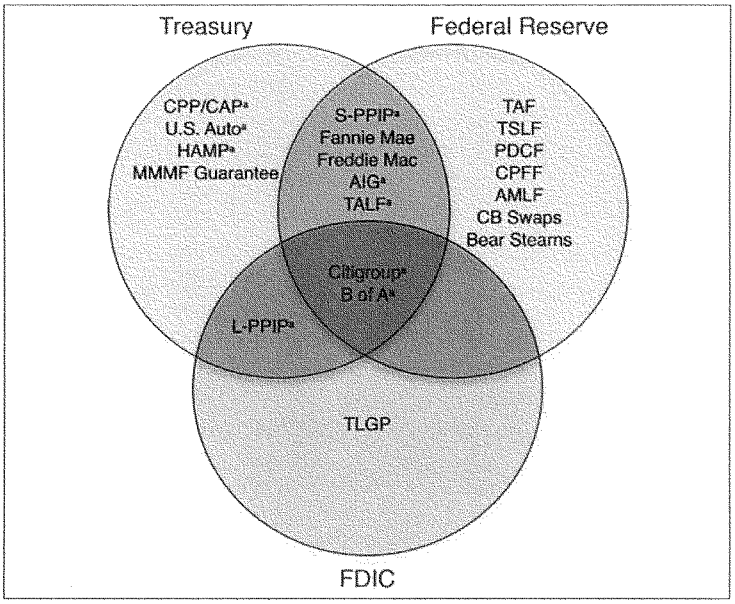
By the end of January 2010, many of the programs that were introduced had either expired or are shrinking. Assuming financial conditions continue to improve, one can estimate with relative confidence approximately how much these programs will ultimately cost (or generate income for) the taxpayers. For a few programs that are still growing in size, and for assistance to firms that are still relying on government support to function, estimates of ultimate gains or losses are more uncertain.

Congress has oversight responsibilities for the government's crisis response, through existing oversight committees and newly created entities such as a Special Inspector General for the TARP (SIGTARP), a Congressional Oversight Panel, and a Financial Crisis Inquiry Commission. Congress is also interested in an accurate accounting of the costs of the crisis in the interest of determining how to cover its costs in the long run. For example, Section 134 of EESA requires the President to propose a method for recouping TARP costs. On January 14, 2010, President Obama proposed a "Financial Crisis Responsibility Fee" to be levied on the debt of certain large financial firms to cover the costs of TARP.

This report reviews the costs of new programs introduced, and other actions taken, by the Treasury, Federal Reserve, and Federal Deposit Insurance Corporation. **Figure 1** presents the programs discussed in this report by organization, with programs in the overlapping circles denoting joint programs. It does not cover longstanding programs such as the Federal Reserve's discount window, mortgages guaranteed and securitized by the Federal Housing Administration and Ginnie Mae, respectively, or FDIC receivership of failed banks.

[2] See, for example, Taylor, John, *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis*, Stanford: Hoover Institution, 2009.

Figure 1. Financial Crisis Programs by Organization



Source: CRS.

Notes: See text below for details of these programs.

a. Program using TARP funds.

Estimating the Costs of Government Interventions

The primary goal of the various interventions was to end the financial panic and restore normalcy to financial markets. By this measure, the programs were arguably a success—financial markets are largely functioning again, although access to credit is still limited for many borrowers over a year later. The goal of intervening at zero cost to the taxpayers was never realistic, at least initially, or meaningful, since non-intervention would likely have led to a much more costly loss of economic output that indirectly would have worsened the government's finances. Nevertheless, an important part of evaluating the government's performance is whether financial normalcy was restored at a minimum cost to the taxpayers.

One can distinguish in the abstract between funds provided to solvent companies and those provided to insolvent companies. For insolvent firms with negative net worth at the time of intervention, the government's chances of fully recouping losses are low.[3] But for solvent firms, if properly implemented, it should be possible to provide funds through widely available lending

[3] As discussed above, providing funds to insolvent firms could still be justified if preventing those firms from failing is the only way to avoid the panic from spreading further.

mechanisms or "lending facilities" at a low ultimate cost to the taxpayers. In a panic, investors typically refuse to provide funds to firms because they are unable to distinguish between healthy and unhealthy firms, and so they err on the side of caution and do not provide any funds. For those private investors who perceive profitable opportunities to lend or invest, not enough liquidity is available to do so. In this situation, the government can theoretically provide those funds to healthy firms at what would normally be a profitable market rate of return. In practice, the challenge is that the government is arguably no more able to accurately distinguish between healthy firms and unhealthy firms than private individuals are, so some widely available lending facilities are likely to be accessed by firms that will ultimately prove not to be solvent, and this is the most likely source of long-term cost for a widely available facility. The latest data bear this out—as shown in **Table 2**, most of the long-term cost of government interventions to date has come from assistance to AIG, Fannie Mae, Freddie Mac, Bear Stearns, and the U.S. automakers. None of the widely available facilities set up by the government are showing significant expected losses at present, and some may end up generating a profit. Of course, this is not evidence that taxpayers bore no risk for facilities currently making a profit—had general outcomes in financial markets proven worse or if they become worse in the future, losses would be larger. Estimates of expected losses for these programs made before the crisis had ended were much larger than expected losses at this point because actual financial conditions have improved.

Table 2. Cost of TARP and Assistance to GSEs

(billions of dollars)

Program	CBO Estimate Gain(+)/Loss(-)	OMB Estimate Gain(+)/Loss(-)
	TARP	
Capital Purchase Program	+3	-1
Targeted Investment Program (Total)	+3	+4
—Citigroup	+2	n/a
—Bank of America	+1	n/a
Asset Guarantee Program	0	+3
AIG	-9	-50
Auto Industry	-47	-31
TALF	-1	+1
PPIP	-3	0
HAMP[a]	-20	-49
TARP Funds Used in Future	-25	-3
Total	**-99**	**-127**
	Fannie Mae and Freddie Mac	
Business to 2009	-291	n/a
Business for 2010-2020[b]	-85	n/a
Total[b]	**-376**	n/a

Source: Congressional Budget Office, *Budget and Economic Outlook*, January 2010; OMB, *Analytical Perspectives, FY2011 President's Budget*, Table 4-7; February 2010; Congressional Budget Office, *CBO's Budgetary Treatment of Fannie Mae and Freddie Mac*, January 2010.

Notes: All programs described in the text below. Estimates made according to the Federal Credit Reform Act adjusted for market risk. Total may not sum due to rounding.

a. HAMP is considered a spending program with no potential financial gain.

b. Summing of years not discounted for present value.

News sources have put the "potential cost to taxpayers," "amount taxpayers are on the hook for," and "taxpayer exposure" as a result of the financial crisis as high as $23.7 trillion.[4] These totals are reached by calculating the maximum potential size of programs or using the total size of markets being assisted when the programs have no announced potential size. This method of calculation is problematic for several reasons. First, these amounts refer to potential government outlays with no indication as to whether outlays would ever reach the potential maximum, particularly for programs without announced maximums. In fact, outlays for most programs have turned out to be far smaller than their potential size.

Second, these totals typically refer to the cash outlay by the government to initially acquire the financial asset (whether it be a common stock, preferred share, or loan), but typically do not take into account the value of the asset that the government receives in exchange. These assets give the government legal claims on the future earnings of the company.[5] All of the government's programs have generated income to the government in the form of dividends, fees, interest, or warrants,[6] and in exchange for all of its outlays, the government has received financial assets or loans that can be sold or repaid in the future. The true cost to the government of these programs is the difference in value between the initial outlay to acquire or guarantee the asset or make the loan, and the money recouped by the government from income payments and subsequent sale or repayment. To compare those costs, economists use present value calculations that reduce costs or income in the future relative to the present by a discount rate. Ultimately, the true cost to the government will be much smaller than the initial outlay, and if the income payments or the asset resale price is high enough, the government could ultimately make a profit on these outlays (i.e., the present value of revenues could exceed initial outlays).

Of course, the true cost of the government's programs will not be known until they have been completely wound down. Most programs, including those that have been shrinking or are closed to new transactions, still have assets or loans outstanding. For some of these assets, the expected net cost of the program can be estimated using the current market value of the assets, since the current market value should reflect expectations of future gains or losses. When current market values are available, this report uses those values to calculate expected gains or losses. For other

[4] See, for example, Dawn Kopecki and Catherine Dodge, "U.S. Rescue May Reach $23.7 Trillion, Barofsky Says," *Bloomberg News*, July 20, 2009, http://www.bloomberg.com/apps/news?pid=20601087&sid=aY0tX8UyslaM; "Potential Cost of U.S. Financial Bailout: Over $8 Trillion," *CNBC.com*, November 25, 2008, http://www.cnbc.com/id/27912307.

[5] The order of priority for those claims from first to last is generally debt, subordinated debt, preferred shares, and common stock or equity. Equity confers ownership, unlike debt. Preferred shares are a form of equity that incorporate some characteristics of debt. In the case of the preferred shares taken by TARP, they generally have fixed income payments (in the form of dividends), do not rise or fall in value with the value of the firm, and do not confer voting rights to the government over the firm's corporate governance.

[6] Warrants through the TARP program give the government the option to buy common stock in a company in the future at a predetermined price. If the government does not wish to exercise that option in the future, it can sell the warrants back to the firm or to a third party. If the company's stock price subsequently rises (falls), the value of the warrant rises (falls). Warrants were proposed on the grounds that they would give the government some upside profits if asset prices went up, while limiting the government's exposure (the value of a warrant cannot fall below zero) if asset prices went down.

assets, market values are not readily available because the assets are illiquid or cannot be compared to anything available in the private market. When held by TARP, the Treasury and the Congressional Budget Office (CBO) have modeled expected future losses on these types of assets based on assumptions they have made about future default rates and future income or losses. These calculations are highly uncertain, particularly at a time when financial markets are atypically volatile. In these calculations, Treasury and CBO are directed by Section 123 of EESA to adjust their estimates by current market borrowing rates, as opposed to the borrowing rate paid by Treasury.[7] Using market rates instead of government borrowing rates increases the net calculated cost of these investments, and is meant to better represent the true economic costs of the programs. As financial conditions have improved, assumptions about default rates and market borrowing rates have become much more favorable, and the expected cost of the programs has fallen considerably from initial estimates. For example, CBO has reduced its estimate for the lifetime cost of TARP from $356 billion to $99 billion; excluding the costs for the Home Affordable Modification Program (HAMP), which is not a financial investment, and funds that have not yet been used, CBO's estimated cost is $54 billion. This figure can be compared to TARP's originally authorized value of asset holdings, $700 billion.[8]

Following the Federal Credit Reform Act,[9] expected losses for TARP and the GSEs presented in **Table 2** are added to the federal budget deficit by CBO in the fiscal year the transactions are made;[10] the programs' effects on the government's cash flow are not counted toward outlays and revenues.[11] (Expected gains and losses for the emergency programs of the Fed and FDIC are not explicitly identified in budget documents, although they influence spending or revenue totals for those agencies within the budget.) This way the change in the deficit represents the "opportunity cost" of using those government funds instead of the change in the amount of debt issued by the government, as would normally be the case. By this calculation, even a transaction that led to net positive cash flow over time could increase the deficit since the government could hypothetically have used those funds in more profitable ways. For example, although the government could buy an asset and later sell it for a higher value, if CBO estimates that the government could have bought the asset at a lower initial price (because the market value was lower), then there would be a subsidy cost to the transaction that increases the budget deficit.

For each program below, CRS reports data on government holdings or guarantees of assets or loans for the end of CY2009; the peak amount for the same measure; income earnings of the program from dividends, interest, or fees; estimates of the program's profits or losses; the

[7] Following receivership, CBO has placed the GSEs on budget, and accounts for losses at the GSEs using an approach similar to the one it uses for TARP.

[8] Congressional Budget Office, *Budget and Economic Outlook*, January 2010, p. 59.

[9] For more information, see CRS Report RL30346, *Federal Credit Reform: Implementation of the Changed Budgetary Treatment of Direct Loans and Loan Guarantees*, by James M. Bickley.

[10] OMB measures the cash flow from the Treasury to the GSEs in the federal budget, rather than measuring expected losses of the GSEs, as CBO does. Since cash flow from Treasury does not include future or unrealized losses, OMB's estimate is smaller than CBO's.

[11] As an example, one can imagine an asset that did not pay interest or dividends was purchased in 2009 for $10 billion and is expected to be sold in 2010 for $8 billion. Under cash flow accounting, the projected deficit would rise by $10 billion in 2009 and fall by $8 billion in 2010. Assuming a market borrowing rate of, say, 10%, this investment would be counted under the Federal Credit Reform Act as increasing the 2009 budget deficit by ($10 billion less $8 billion/1.10), or $2.7 billion, with no effect on the 2010 deficit. If the government borrowing rate of, say, 5% were used instead, the 2009 budget deficit would have been increased by ($10 billion less $8 billion/1.05), or $2.4 billion.

dividend or interest rate charged by the program; warrants received in the transactions; subsequent modifications to the assistance (if any); and the expiration date for the program.

Troubled Asset Relief Program

Under the authority granted in EESA, Treasury has broad discretion to structure TARP, and several programs have been created. The first and largest of the TARP programs is the Capital Purchase Program (CPP), which initially planned to inject $250 billion into the banking system by purchasing preferred stock in banks, although ultimately approximately $205 billion was disbursed. Treasury has also provided additional assistance to three financial institutions (Citibank, Bank of America, and AIG) through three smaller TARP programs (the Targeted Investment Program, the Asset Guarantee Program, and the Systemically Important Institutions Program). At one time, these programs had planned to spend up to a combined total of $115 billion, although significantly less than that amount has been tapped. Treasury plans to provide up to $85 billion for automobile manufacturers, their financing affiliates, and suppliers in two TARP programs, the Automotive Industry Financing Program and the Automotive Supplier Support Program. Treasury initially planned to spend up to $100 billion to buy $1 trillion of assets from banks through the Public-Private Investment Program (PPIP), although the first transactions totaling less than $17 billion did not occur until October 2009. The current total planned for PPIP is $30 billion. Treasury plans to provide up to $60 billion in the Consumer and Business Lending Initiative (CBLI), some of which would cover losses in the Fed's Term Asset-Backed Securities Lending Program, and some of which was not yet identified at the end of 2009. Treasury plans to provide $50 billion in the Home Affordable Mortgage Modification Program (HAMP) to encourage mortgage servicers to modify more loans.

As of December 31, 2009, Treasury reports plans to spend a total of $545 billion of the $700 billion authorized under TARP, with $483.4 billion committed to specific institutions through signed contracts, and $374.6 billion paid out under such contracts. Of that total, $165.2 billion of funds paid out have already been returned to the Treasury.[12] Data on TARP disbursements, planned uses of funds, and income are reported by Treasury periodically. The legal authority for TARP purchases is scheduled to expire on October 3, 2010.

Table 3. Troubled Asset Relief Program Totals

As of December 31, 2009	
Authorized	$700 billion[a]
Planned Outlays	$545 billion
Committed Outlays	$483.4 billion
Actual Disbursed	$374.6 billion
Returned Funds	$165.2 billion

Source: December 2009 TARP 105(a) Report.

a. Original authorization, subsequently reduced to $689.7 billion by P.L. 111-22.

[12] All amounts in the preceding are from U.S Treasury, *Troubled Assets Relief Program Monthly 105(a) Report—December 2009*, January 11, 2010, pp 5-6. This report can be found at http://financialstability.gov/latest/reportsanddocs.html. Hereafter referred to as "December 2009 TARP 105(a) Report."

Programs consisting solely of TARP funds are discussed immediately below, while those involving other agencies, such as the Federal Reserve and FDIC, are discussed under the heading "Joint Interventions."

Capital Purchase Program and Capital Assistance Program

In October 2008, during the 110th Congress, Treasury announced the Capital Purchase Program. Under this program, $125 billion in capital was immediately provided to the nine largest banks, with up to another $125 billion reserved for smaller banks that might wish to apply for funds through their primary Federal banking regulator. This capital was provided in the form of preferred share purchases by TARP under contracts between the Treasury and banks. The initial contracts with the largest banks (eight rather than nine because of a merger) prevented these banks from exiting the program for three years. The contracts included dividend payments to be made on the preferred shares outstanding and for the granting of warrants to the government. By the end of 2008, the CPP program had 214 participating banks with approximately $172.5 billion in share purchases outstanding.

The Obama Administration and the 111th Congress implemented changes to the CPP. EESA was amended by the new 111th Congress, placing additional restrictions on participating banks in the existing CPP contracts, but also allowing for early repayment and withdrawal from the program without financial penalty.[13] The Obama Administration announced a review of the banking system, in which the largest participants were subject to stress tests to assess the adequacy of their capital levels. Passage of the stress test was one regulatory requirement for large firms that wished to repay TARP funds. Large firms that failed the stress test would be required to raise additional capital, and the firms would have the option of raising that capital privately or from the government through a new Capital Assistance Program. No funding has been provided through the Capital Assistance Program, although GMAC, formerly General Motors' financing arm, received funding to meet stress test requirements through the Automotive Industry Financing Program (discussed below). In addition, Citigroup, one of the initial eight large banks receiving TARP funds, agreed with the government to convert its TARP preferred shares into common equity to meet stress test requirements (see discussion of Citigroup below). With the advent of more stringent executive compensation restrictions, many banks began to repay, or attempt to repay, TARP funds. By June 30, 2009, $70.1 billion of $203.2 billion CPP funds had been repaid and by December 31, 2009, $121.9 billion of $204.9 billion had been repaid.

Realized losses to date on the CPP preferred shares have been small. The Treasury's Office of Financial Stability (OFS) reported in its FY2009 report that three CPP recipients had failed and the value of their investments had been written down by TARP–CIT Group, with preferred shares of $2.3 billion written down to zero, UCBH Holdings, with preferred shares of $298.7 million written down to $22.5 million, and Pacific Coast National Bancorp, with preferred shares of $4.1 million written down to $154,000.[14] Additional losses may occur in the future as a result of more recipients failing.

[13] Title VII of the American Recovery and Reinvestment Act of 2009 (H.R. 1/P.L. 111-16/123 Stat. 115).

[14] U.S. Department of Treasury, Office of Financial Stability, *Agency Financial Report FY2009*, p. 97.

An indicator of how many preferred shares may currently be at risk of future losses might be gleaned from the number of recipients who have missed dividend payments on TARP funds. If a bank were short of funds to pay TARP dividends, it may also be unable to pay other liabilities and thus close to failure. As of December 31, 2009, SIGTARP reported that 74 institutions had missed dividend payments worth $140.7 million. (Of this total, $58.3 million were owed by CIT Group.[15]) This also may be a misleading measure of troubled participants, however, because there is no penalty or moral opprobrium for missing a dividend payment – missed dividend payments are simply rolled into the outstanding balance. Thus, healthy banks could be missing dividend payments in order to increase the amount of capital available to support their business. Alternatively, some of the banks who cannot afford dividend payments now may become more profitable as the economy recovers and ultimately repay TARP funds.

A key part of the ultimate profitability of TARP will hinge on proceeds from the warrants received from the companies. To date, Treasury has not exercised warrants to take common stock in CPP recipients.[16] Following the contracts initially agreed upon, Treasury has allowed institutions to purchase their warrants directly upon repayment of preferred shares, as long as both sides can reach an acceptable price. To reach an initial offering price, Treasury is using complex option pricing models to price the warrants that require assumptions to be made about future prices and interest rates. Since these pricing models are by their nature uncertain, some critics urge Treasury to auction the warrants on the open market (allowing the issuing firm to bid as well) to ensure that Treasury receives a fair price for them. Open auctions have been used, but only when an agreement between the Treasury and the firms cannot be reached.

CPP earns income from dividends with a rate of 5% for the first five years, and 9% thereafter. (For S-Corp banks, the dividend rate is 7.7% for the first five years and 13.8% thereafter.) It also receives earnings from the sale of warrants. For 2009, CPP received $12.3 billion from dividends, fees, and warrants. For the life of the program, OMB estimates a subsidy or expected loss of $1.4 billion on the CPP. By contrast, CBO estimates the program will result in a net gain of $3 billion.[17]

[15] Special Inspector General, Troubled Asset Relief Program, *Quarterly Report to Congress*, January 2010, Table 2.10.

[16] In a special arrangement, the government converted its Citigroup preferred shares to common stock without exercising its warrants. For more information, see the section "Citigroup."

[17] The subsidy equals the present value of expected defaults plus the difference between the actual dividend rate and comparable market rates. When more banks repay, the expected value of defaults declines.

Table 4. Capital Purchase Program

Federal Government				Terms and Conditions		
Asset Holdings End of CY2009	Asset Holdings at Peak	Total Income CY2009	Current or Expected Gains(+)/ Losses(-)	Dividend Rate	Warrants	Expiration Date
$83 billion	$204.9 billion[a]	$12.3 billion	+$3 billion (CBO); -$1.4 billion (OMB)	5% for first 5 years, 9% thereafter[b]	15% of preferred shares (5% immediately exercised for privately- held banks)	Preferred Shares outstanding until repaid. No new contracts/modifications to program after Oct. 3, 2010.

Source: December 2009 TARP 105(a) Report; Congressional Budget Office, *Budget and Economic Outlook*, January 2010; SIGTARP, *Quarterly Report to Congress*, January 30, 2010; OMB, *Analytical Perspectives, FY2011 President's Budget*, Table 4-7; February 2010.

Notes: CBO estimates through June 2009, Treasury subsidy estimates through end of FY2009. Data includes preferred shares to Citigroup and Bank of America under CPP, which are also detailed in sections on assistance to those companies below.

a. Amount represents total investments over the life of the program. Because of staggered repayments and investments, $204.9 billion was never outstanding at one time.

b. For S-Corp banks, the dividend rate is 7.7% for the first five years and 13.8% thereafter.

Home Affordable Modification Program

One criticism leveled at the early stages of TARP was its focus on assisting financial institutions, thus providing only indirect assistance to individual homeowners facing foreclosure. Sections 103, 109 and 110 of the EESA specifically embody congressional intent that homeowners be aided under TARP. In March 2009, the TARP Home Affordable Modification Program (HAMP) was announced.[18] Up to $50 billion in TARP funds are planned for HAMP, which is intended to encourage modification of mortgages to benefit homeowners. The program's goal is to offer 3-4 million homeowners lower mortgage payments through 2012. The program operates by paying servicers if they modify mortgages such that the monthly payments equal no more than 31% of a borrower's monthly gross income. As of December 31, 2009, 103 servicers agreed to participate with more than $35.5 billion committed to implement the program. The actual amount of funding disbursed, however, was only $1.27 billion.[19] Unlike other TARP programs which have resulted in asset purchases that may eventually return some funds to the government, the HAMP program has no mechanism for returning funds. Expected outlays under HAMP have been scored by the Congressional Budget Office as 100% spending.

[18] HAMP is part of the Administration's broader Making Home Affordable Program, whose other aspects include an FDIC-sponsored loan modification program and lower mortgage-interest rates through Fannie Mae and Freddie Mac. Much of the funding for these programs is not through TARP.

[19] December 2009 TARP 105(a) Report, pp. 18-20, 32-33

U.S. Automakers[20]

In addition to financial firms, non-financial firms have also sought support under TARP, most notably U.S. automobile manufacturers. Initially, the Treasury did not provide TARP funds to such firms, arguing that the program was intended to buy assets only from financial institutions.[21] On November 17, Senator Harry Reid introduced an amendment to EESA that would have directed Treasury to use TARP funds to aid the automobile industry (S. 3688), but such legislation did not pass prior to the adjournment of the 110th Congress.

The Administration suggested instead using funds already appropriated for the development of advanced technology vehicles under a direct loan program operated by the Department of Energy and authorized under the Energy Independence and Security Act (EISA).[22] Representative Barney Frank, Chairman of the House Financial Services Committee, introduced H.R. 7321 in December 2008, directing the reprogramming of the $14 billion in EISA loans to support GM and Chrysler. The legislation, which passed the House passed 237-170, also established a presidential designee (or "car czar") to oversee compliance. Despite urging from the Bush Administration, there were disagreements in the Senate over this legislation and it was never voted on.

With H.R. 7321 seeing no action in the Senate, the Bush Administration indicated that, after all, it would consider making loans to the auto companies from the TARP program. On December 19, 2008, the U.S. Treasury announced it was providing support through TARP to General Motors and Chrysler. The initial package included up to $13.4 billion in a secured loan to GM and $4 billion in a secured loan to Chrysler. In addition, $884 million was lent to GM for its participation in a rights offering by GMAC as GM's former financing arm was becoming a bank holding company. On December 29, 2008, the Treasury announced that GMAC also was to receive a $5 billion capital injection through preferred share purchases, which was followed by another $7.5 billion on May 21, 2009. On January 16, 2009, Treasury announced a $1.5 billion loan to Chrysler Financial.

Up to $5 billion in funding for TARP's auto industry supplier program was funded under the Auto Supplier Support Program (ASSP), which provided loans "to ensure that auto suppliers receive compensation for their services and products, regardless of the condition of the auto companies that purchase their products."[23]

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[20] This section prepared with the assistance of Bill Canis, Specialist in Industrial Organization and Business. For a comprehensive analysis of federal financial assistance to U.S. automakers, see CRS Report R40003, *U.S. Motor Vehicle Industry: Federal Financial Assistance and Restructuring*, coordinated by Bill Canis. Statistics in the section taken from the December 2009 TARP 105(a) Report, from Congressional Oversight Panel, *September Oversight Report: The Use of TARP Funds in the Support and Reorganization of the Domestic Automotive Industry*, September 9, 2009, available at http://cop.senate.gov/documents/cop-090909-report.pdf and from various contracts posted by the U.S. Treasury at http://financialstability.gov/roadtostability/autoprogram.html.

[21] See, for example, Statement by Secretary of the Treasury Henry Paulson in U.S. Congress, House Committee on Financial Services, *Oversight of Implementation of the Emergency Economic Stabilization Act of 2008 and of Government Lending and Insurance Facilities: Impact on the Economy and Credit Availability*, 110th Cong., 2nd sess., November 18, 2008.

[22] P.L. 110-140.

[23] U.S. Department of the Treasury, "Troubled Assets Relief Program, Section 105(a) Monthly Congressional Report," January 11, 2010, p. 28, http://financialstability.gov/docs/105CongressionalReports/December%20105(a)_final_1-11-10.pdf.

Unable to work out their differences with a group of creditors, the two companies were ultimately compelled to enter bankruptcy. On April 30, 2009, Chrysler filed for Chapter 11 bankruptcy and announced that Fiat would take an initial 20% stake and take over management of the new company. On June 1, 2009, General Motors Corporation filed for Chapter 11 bankruptcy and announced a major restructuring plan that would allow it to leave most of its liabilities in bankruptcy and sell most of its assets to a new General Motors Company. This restructuring plan included eliminating brands, closing dealerships, and shutting plants.[24] Federal assistance considerably shortened the amount of time the two companies spent in bankruptcy court.

Additional government support was provided to the auto industry before and during bankruptcy. The outstanding amount at its peak included $49.9 billion in loans to GM and up to $15.2 billion in loans to Chrysler, of which $10.8 billion were drawn. Of these totals, $280 million was provided to Chrysler and $361 million to GM for a Warranty Commitment Program; those funds were subsequently repaid. In addition, $884 million was lent to GM for its participation in a rights offering after GMAC became a bank holding company.

Once the bankruptcy process was completed, the assets and liabilities of GM and Chrysler were divided between "old" GM and Chrysler corporations left behind in bankruptcy and "new" Chrysler and GM companies where future business will take place. Of the money owed to the government at the end of bankruptcy, some of the loans remained with the "old" GM and Chrysler corporations, some were assigned to the "new" Chrysler and GM companies, and some were replaced with common equity in the "new" Chrysler and GM companies. Whether this equity ultimately has value depends on whether the "new" firms can return to profitability. In the third quarter of 2009, New GM reported a loss. The Congressional Oversight Panel notes that "New GM will have to achieve a capitalization that is higher than was ever achieved by Old GM if taxpayers are to break even."[25] New Chrysler did not report financial results in 2009. The Congressional Oversight Panel believes that repayment of loans remaining in Old Chrysler is unlikely.[26]

As of December 31, 2009, TARP support for the auto industry totaled approximately $85 billion, with $73.8 billion outstanding. The assistance outstanding currently takes the form of: government ownership of 9.9% of the equity in post-bankruptcy New Chrysler, with $5.1 billion in loans outstanding; loans of $5.4 billion outstanding to Old Chrysler; government ownership of 60.8% of post-bankruptcy GM with $6.7 billion in loans and $2.1 billion in preferred stock outstanding; a $985.8 million loan outstanding to Old GM. The loan to Chrysler Financial was completely repaid with interest. Additional assistance was provided to GMAC on December 31, 2009, that resulted in the government holding 56.3% of GMAC common stock and $11.4 billion in convertible preferred stock. CBO estimates the ultimate net cost of this assistance to be $47 billion, while OMB estimates it to be $31 billion.

[24] For an explanation of the decision process to assist General Motors and Chrysler, see Steven Rattner, "The Auto Bailout: How We Did It," *Fortune*, vol. 160, no. 9, November 9, 2009, pp. 55-71.

[25] Congressional Oversight Panel, *Oversight Report*, September 2009, p. 57.

[26] Congressional Oversight Panel, *Oversight Report*, September 2009, p. 57.

Table 5. Government Support to the Auto Industry

	Federal Government				Terms and Conditions		
Beneficiary/ Program	**Outstanding Balance End of CY2009**	**Total Assistance at Peak**	**Total Income CY2009**	**Current or Expected Gain(+)/Loss(-)**	**Dividend/ Interest Rate**	**Subsequent Conversion**	**Expiration Date**
"new" General Motors (post-bankruptcy)	$6.7 billion loan; $2.1 billion preferred stock	$49.5 billion loans (before bankruptcy completed)	$361.6 million	Not Reported	LIBOR + 5%[a]	Loan converted into 60.8 % of common equity and preferred stock	January 2015 (loan); preferred shares have no expiration
"old" General Motors (pre- and during bankruptcy)	$985.8 million		$0	Not Reported	LIBOR + 5%[a]	n/a	December 2010
GMAC	$11.4 billion convertible preferred stock	$16.3 billion convertible preferred stock; $884 million loan through GM	$855 million	Not Reported	9%	Loan and preferred shares converted into 56.3% of common equity	No expiration
"New" Chrysler (post-bankruptcy)	$5.1 billion loan	$10.5 billion drawn of $14.9 billion loans (before bankruptcy completed)	$0	Not Reported	LIBOR + 7.9%[a]	9.9% of common equity	June 2017
"Old" Chrysler (pre- and during bankruptcy)	$5.4 billion loan		$55.1 million	Not Reported	LIBOR + 3%; LIBOR + 5%[a]	None	December 2011
Chrysler Financial	$0	$1.5 billion loan until July 14, 2009	$7.4 million	n/a		None	n/a
Auto Suppliers	$3.4 billion loan	$3.5 billion drawn of $5.0 billion loan	$11.3 million	Not Reported	Greater of LIBOR+ 3.5% or 5.5%[a]	None	Apr. 2010
GM and Chrysler Warranty Commitment	$0	$641 million until July 10, 2009	$5.5 million	n/a	LIBOR+3.5%[a]	None	n/a

Federal Government					Terms and Conditions		
Beneficiary/ Program	**Outstanding Balance End of CY2009**	**Total Assistance at Peak**	**Total Income CY2009**	**Current or Expected Gain(+)/Loss(-)**	**Dividend/ Interest Rate**	**Subsequent Conversion**	**Expiration Date**
Total	n/a	n/a	n/a	-$47 billion (CBO); -$30.8 billion (OMB)	n/a	n/a	Support outstanding until repaid. No new contracts/modifications to program after Oct. 3, 2010.

Source: December 2009 TARP 105(a) Report; December 2009 TARP Dividends and Interest Report; Congressional Oversight Panel September 2009 Oversight Report; Congressional Budget Office, *Budget and Economic Outlook*, January 2010; SIGTARP, *Quarterly Report to Congress*, January 30, 2010; OMB, *Analytical Perspectives, FY2011 President's Budget*, Table 4-7; February 2010.

a. LIBOR = London Inter-bank Offered Rate

Federal Reserve

Beginning in December 2007, the Federal Reserve introduced a number of emergency credit facilities to provide liquidity to various segments of the financial system.[27] Most, but not all, of these facilities make short-term loans backed by collateral that exceeds the value of the loan, with recourse if the borrower defaults. These facilities were widely available to all qualified participants. (Fed assistance to individual companies is discussed separately below.) Since the Fed's creation nearly 100 years ago, the Fed has always made short-term collateralized loans to banks through its discount window. In the years before the crisis, loans outstanding through the discount window were consistently less than $1 billion at any time. At the peak of the crisis, total assistance outstanding would peak at over $1 trillion. What distinguished these new facilities from the Fed's traditional lending was the fact that many served non-banks that were not regulated by the Fed.

Profits or losses on Fed lending accrue to the taxpayer just as if those loans were made by the Treasury. The Fed generates income from its assets and loans that exceed its expenses. Any income that remains after expenses, dividends, and additions to its surplus is remitted to the Treasury. If its profits rise because its lending facilities are more profitable than alternative uses, more funds will be remitted to the Treasury. If it suffers losses on its facilities, its remittances to the Treasury will fall. The risk to most of the Fed's broad credit facilities is relatively low since the loans are short-term, collateralized, and the Fed has the right to refuse borrowers it deems to be not credit-worthy. (As discussed below, the Fed's assistance to firms deemed "too big to fail" was significantly riskier.) In 2009, the Fed remitted $46 billion to the Treasury. This was $14 billion more than in 2008; the main reason the Fed's profits rose was because it greatly increased its assets in an attempt to provide more liquidity to the financial system. In that sense, taxpayers have profited from the creation of the Fed's lending facilities, although that was not their purpose and those facilities were not risk free.

The Fed has standing authority to lend to banks and buy certain assets, such as GSE-issued securities. For many new programs, the Fed relied on broad emergency authority (Section 13(3) of the Federal Reserve Act) that had not been used since the 1930s. The Fed is self-financing and did not receive any appropriated funds to finance its activities.

Throughout 2009, credit outstanding under most of these facilities has consistently fallen, primarily because financial firms have begun returning to private sources of funding as financial conditions have improved. Most emergency facilities expired on February 1, 2010. Two notable exceptions of Fed programs that have continued to grow through 2009 are the Term Asset-Backed Securities Lending Facility (TALF), which did not begin operation until March 2009, and the Fed's purchases of mortgage-related securities.

Estimating a subsidy rate on Fed lending is not straightforward, and some would argue is not meaningful. The Fed's loans are usually made at some modest markup above the federal funds rate; in that sense they can be considered higher than market rates—whether the markup is high enough to avoid a subsidy depends on the riskiness of the facility. But the Fed controls the federal

[27] More detail on all of the facilities discussed in this section of the report can be found in CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*, by Marc Labonte.

funds rate, even though it is a private market for overnight inter-bank lending. During the crisis, the Fed drove the federal funds rate gradually down from 5.25% in September 2007 to nearly zero in December 2008 by creating the liquidity needed to avert a liquidity crisis; as a result, its direct loans were made at a very low rate. (Indeed, the Fed's emergency activities helped it provide more total liquidity to financial markets and reduce the federal funds rate. In normal periods, this would be done through purchases of Treasury securities instead.) Since the purpose of the Fed is to supply financial markets with adequate liquidity, which has some characteristics of what economists call a "public good" that cannot always be provided by the private sector, it is not clear that reducing the federal funds rate should be classified as a subsidy. Further, the Fed would argue that it was only providing credit because there was no private sector alternative during the crisis—an argument that is less compelling over time as market conditions continue to stabilize.

The Fed reports extensive data on its activities. Outstanding balances for each facility are available on a weekly basis from the H.4.1 data release, *Factors Affecting Reserve Balances of Depository Institutions*. Detailed information on the number of borrowers, concentration of loans, types of collateral, and overall earnings for each facility is available on a monthly basis in *Federal Reserve System Monthly Report on Credit and Liquidity Programs and the Balance Sheet*. Some Members of Congress have criticized the Fed, however, for not providing the details of specific transactions, particularly the identities of recipients and specific collateral posted.

Term Auction Facility

In December 2007, the Fed created its first facility in response to financial conditions, the Term Auction Facility (TAF). This facility auctions reserves to banks in exchange for collateral. Economically and legally, this facility is equivalent to the discount window, and was created primarily out of a concern that banks were not accessing the discount window as much as needed as a result of the stigma associated with discount window lending. Since this facility was not created with emergency authority, it need not be temporary, but the Fed has announced no further auctions after March 8, 2010.

Any depository institution eligible for discount window lending can participate in the TAF, and hundreds at a time have accessed the TAF and the discount window since its inception. The auction process determines the rate at which those funds will be lent, with all bidders receiving the lowest winning bid rate. The winning bid may not be lower than the prevailing federal funds rate. Auctions through the TAF have been held twice a month beginning in December 2007. The amounts auctioned have greatly exceeded discount window lending, which averaged in the hundreds of millions of dollars outstanding daily before 2007 and more than $10 billion outstanding during the crisis. Loans outstanding under the facility peaked at $493 billion in March 2009, and have fallen steadily since. Between the discount window and the TAF, banks were consistently the largest private sector recipient of Fed assistance.

TAF loans mature in 28 days—far longer than overnight loans in the federal funds market or the typical discount window loan. (In July 2008, the Fed began making some TAF loans that matured in 84 days.) Like discount window lending, TAF loans must be fully collateralized with the same qualifying collateral accepted by the discount window. Loan previously made by depository institutions and asset-backed securities are the most frequently posted collateral. Although not all collateral has a credit rating, those that are rated typically have the highest rating. As with discount window lending, the Fed faces the risk that the value of collateral would fall below the loan amount in the event that the loan was not repaid. For that reason, the amount lent diminishes

as the quality of the collateral diminishes. Most borrowers borrow much less than the posted collateral. In the first three quarters of 2009, the Fed earned $713 million from the TAF.

Table 6. Term Auction Facility

Federal Reserve				Terms and Conditions	
Loans Outstanding End of 2009	Loans Outstanding at Peak	Total Income 2009 through Q3	Current or Expected Gains(+)/ Losses(-)	Lending Rate	Expiration Date
$75.9 billion	$493 billion in March 2009	$713 million	$0	no lower than federal funds rate	March 8, 2010

Source: CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009.

Term Securities Lending Facility

Shortly before Bear Stearns suffered its liquidity crisis in March 2008, the Fed created the Term Securities Lending Facility (TSLF) to expand its securities lending program for primary dealers, who include investment banks that were ineligible to access the Fed's lending facilities for banks at the time. The proximate cause of Bear Stearns' crisis was the inability to roll over its short-term debt, and the Fed created the TSLF and the Primary Dealer Credit Facility (discussed below) to offer an alternative source of short-term liquidity for primary dealers.

Under the TSLF, up to $75 billion (previously up to $200 billion) of Treasury securities could be lent for 28 days instead of overnight. Treasury securities are valuable to primary dealers because of their use in repurchase agreements ("repos") that are an important source of short-term financing. Loans could be collateralized with private-label MBS with an AAA/Aaa rating, agency commercial mortgage-backed securities, and agency collateralized mortgage obligations.[28] On September 14, 2008, the Fed expanded acceptable collateral to include all investment-grade debt securities. Since August 2009, no securities have been borrowed through this facility, and the facility expired February 1, 2010. The Fed does not report income from the TSLF separately from its overall portfolio earnings.

[28] As of June 2009, Treasury securities, Agency securities, and Agency-guaranteed mortgage-backed securities were no longer accepted as collateral for the TSLF because the Fed deemed these assets to no longer be illiquid. Few of these assets were posted as collateral when the Fed discontinued their use.

Table 7. Term Securities Lending Facility

Federal Reserve				Terms and Conditions	
Loans Outstanding End of 2009	Loans Outstanding at Peak	Total Income 2009 through Q3	Current or Expected Gains(+)/ Losses(-)	Fee	Expiration Date
$0	$260 billion on Oct. 1, 2008	n/a	$0	10 to 25 basis points	February 1, 2010

Source: CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009.

Primary Dealer Credit Facility

Shortly after Bear Stearns' liquidity crisis, the Fed created the Primary Dealer Credit Facility (PDCF), which can be thought of as similar to a discount window for primary dealers. Loans are made at the Fed's discount rate, which has been set slightly higher than the federal funds rate during the crisis. Loans are made on an overnight basis and fully collateralized, limiting their riskiness. Acceptable collateral initially included Treasuries, government agency debt, and investment grade corporate, mortgage-backed, asset-backed, and municipal securities. On September 14, 2008, the Fed expanded acceptable collateral to include certain classes of equities. The Primary Dealer Credit Facility expired on February 1, 2010.

Borrowing from the facility has been sporadic, with average daily borrowing outstanding above $10 billion in the first three months, and falling to zero in August 2008. Much of this initial borrowing was done by Bear Stearns, before its merger with J.P. Morgan Chase had been completed. Loans outstanding through the PDCF picked up again in September 2008 and peaked at $148 billion on October 1, 2008. Since May 2009, outstanding loans through the PDCF have been zero, presumably because the largest investment banks converted into or were acquired by bank holding companies in late 2008, making them eligible to access other Fed lending facilities. The PDCF's interest income for the first three quarters of 2009 was $37 million.

Table 8. Primary Dealer Credit Facility

Federal Reserve				Terms and Conditions	
Loans Outstanding End of 2009	Loans Outstanding at Peak	Total Income 2009 through Q3	Current or Expected Gains(+)/ Losses(-)	Lending Rate	Expiration Date
$0	$148 billion on Oct. 1, 2008	$37 million	$0	equal to Fed's discount rate	February 1, 2010

Source: CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009.

Term Asset-Backed Securities Loan Facility

In November 2008, the Fed created the Term Asset-Backed Securities Loan Facility (TALF) in response to problems in the market for asset-backed securities (ABS). According to the Fed, "new

issuance of ABS declined precipitously in September and came to a halt in October. At the same time, interest rate spreads on AAA-rated tranches of ABS soared to levels well outside the range of historical experience, reflecting unusually high risk premiums."[29] Data support the Fed's view: issuance of non-residential mortgage asset-backed securities fell from $902 billion in 2007 to $5 billion in the fourth quarter of 2008, according to the Securities Industry and Financial Markets Association. The Fed fears that if lenders cannot securitize these types of loans, less credit will be extended to consumers, and eventually households will be forced to reduce consumption spending, which would exacerbate the economic downturn.

Rather than purchase ABS directly, the Fed is making non-recourse loans to private investors to purchase recently issued ABS receiving the highest credit rating, using the ABS as collateral. The minimum loan size is $10 million. If the ABS lose value, the losses would be borne by the Fed and the Treasury (through TARP) instead of by the borrower – an unusual feature for a Fed lending facility which makes TALF riskier for the taxpayers than typical Fed lending facilities. Thus far, Treasury has set aside $20 billion of TARP funds to cover future TALF losses, although it has discussed increasing that amount. Eligible collateral includes new securities backed by auto loans, student loans, small business loans, and credit card loans. TALF was later expanded to include "legacy" commercial mortgage-backed securities as part of the Public Private Investment Program. The Fed lends less than the current value of the collateral, so the Fed would not bear losses on the loan until losses exceed the value of this reduction or "haircut" (different ABS receive different haircuts). The loans have a term of up to three years for most types of assets (and up to five years for some types of assets), but can be renewed. Interest rates are set at a markup over different maturities of the London inter-bank offered rate (LIBOR) or the federal funds rate, depending on the type of loan and underlying collateral.

Thus far, TALF has been a relatively small program compared to the $200 billion program envisioned by the Fed or the $1 trillion program later envisioned by Treasury. In part, this is because the issuance of assets eligible for TALF has remained low, which reflects the continuing depressed state of securitization markets and may imply that TALF has been unable to overcome current investor aversion to ABS. (Since TALF began operation in March 2009, a sizable share of ABS issued have been used as collateral for TALF loans.) The termination date of the facility has been extended, most recently to the end of June 2010 for loans against newly issued CMBS and March 2010 for loans against other assets. Unlike most other Fed lending facilities, the amount outstanding under TALF steadily rose through 2009.

At the end of the 2009, there had been no defaults on TALF loans reported, and therefore no use of TARP funds beyond $103 million for initial administrative costs. In the first three quarters of 2009, TALF's interest income was $214 million.

[29] Board of Governors of the Federal Reserve System, press release, November 25, 2008.

Table 9. Term Asset-Backed Securities Loan Facility

Federal Reserve				Terms and Conditions	
Loans Outstanding End of 2009	Loans Outstanding at Peak	Total Income 2009 through Q3	Current or Expected Gains(+)/ Losses(-)	Lending Rate	Expiration Date
$48 billion	$48 billion	$214 million	-$1 billion (CBO); +$0.5 billion (OMB)	different markups over LIBOR or federal funds rate	Mar. 31, 2010 (June 30, 2010 for new CMBS)

Source: CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009.

Commercial Paper Funding Facility and Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility

To meet liquidity needs, many large firms routinely issue commercial paper, which is short-term debt purchased directly by investors that matures in less than 270 days, with an average maturity of 30 days. There are three broad categories of commercial paper issuers: financial firms, non-financial firms, and pass-through entities that issue paper backed by assets. The commercial paper issued directly by firms tends not to be backed by collateral, as these firms are viewed as large and creditworthy and the paper matures quickly.

Individual investors are major purchasers of commercial paper through money market mutual funds and money market accounts. On September 16, 2008, a money market mutual fund called the Reserve Fund "broke the buck," meaning that the value of its shares had fallen below face value. This occurred because of losses it had taken on short-term debt issued by Lehman Brothers, which filed for bankruptcy on September 15, 2008. Money market investors had perceived "breaking the buck" to be highly unlikely, and its occurrence set off a run on money market funds, as investors simultaneously attempted to withdraw an estimated $250 billion of their investments – even from funds without exposure to Lehman.[30] This run greatly decreased the demand for new commercial paper. Firms rely on the ability to issue new debt to roll over maturing debt to meet their liquidity needs.

Fearing that disruption in the commercial paper markets could make overall problems in financial markets more severe, the Fed announced on September 19, 2008, that it would create the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF). This facility would make non-recourse loans to banks to purchase asset-backed commercial paper. Because the loans were non-recourse, the banks would have no further liability to repay any losses on the commercial paper collateralizing the loan. At its peak in early October 2008, there were daily loans of $152 billion outstanding through the AMLF. The AMLF would soon be superseded in importance by the creation of the Commercial Paper Funding Facility, and lending fell to zero in

[30] Figure cited in Chairman Ben Bernanke, "Financial Reform to Address Systemic Risk," speech at the Council on Foreign Relations, March 10, 2009.

October 2009. In the first nine months of 2009, it earned $72 million. The facility is expired on February 1, 2010.

On October 7, 2008, the Fed announced the creation of the Commercial Paper Funding Facility (CPFF), a special purpose vehicle (SPV) controlled by the Fed that would borrow from the Fed to purchase all types of three-month, highly rated U.S. commercial paper, secured and unsecured, from issuers. The interest rate charged by the CPFF was set at the three month overnight index swap plus 1 percentage point for secured corporate debt, 2 percentage points for unsecured corporate debt, and 3 percentage points for asset-backed paper. The CPFF can buy as much commercial paper from any individual issuer as that issuer had outstanding in the year to date. Any losses borne by the CPFF would ultimately be borne by the Fed. The facility is authorized under Section 13(3) of the Federal Reserve Act, and was subsequently extended until February 1, 2010. At its peak in January 2009, the CPFF held $351 billion of commercial paper, and has fallen steadily since. In the first nine months of 2009, it earned $3.9 billion.

On October 21, 2008, the Fed announced the creation of the Money Market Investor Funding Facility (MMIFF), and pledged to lend it up to $540 billion. The MMIFF was planned to lend to private sector SPVs that invest in commercial paper issued by highly rated financial institutions. Each SPV would have been owned by a group of financial firms and could only purchase commercial paper issued by that group. The intent was for these SPVs to purchase commercial paper from money market mutual funds and similar entities facing redemption requests to help avoid runs such as the run on the Reserve Fund. The MMIFF never became operational, and the facility expired on February 1, 2010.

Table 10. Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility

Federal Reserve				Terms and Conditions	
Loans Outstanding End of 2009	**Loans Outstanding at Peak**	**Total Income 2009 through Q3**	**Current or Expected Gains(+)/ Losses(-)**	**Lending Rate**	**Expiration Date**
$0	$152 billion on October 8, 2009	$72 million	$0	Fed's Discount Rate	February 1, 2010

Source: CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009.

Table 11. Commercial Paper Funding Facility

Federal Reserve				Terms and Conditions	
Holdings End of 2009	Holdings at Peak	Total Income 2009 through Q3	Current or Expected Gains(+)/ Losses(-)	Interest Rate	Expiration Date
$14 billion	$351 billion Jan 2009	$3.9 billion	$4.4 billion	various markups over overnight index swap rate	February 1, 2010

Source: CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009.

Central Bank Liquidity Swaps

In December 2007, the Fed announced the creation of temporary reciprocal currency agreements, known as swap lines, with the European Central Bank and the Swiss central bank. These agreements let the Fed swap dollars for euros or Swiss francs, respectively, for a fixed period of time. Since September 2008, the Fed has extended similar swap lines to central banks in several other countries. To date, most of the swaps outstanding have been with the European Central Bank and Bank of Japan. In October 2008, it made the swap lines with certain countries unlimited in size. Interest is paid to the Fed on a swap outstanding at the rate the foreign central bank charges to its dollar borrowers. The temporary swaps are repaid at the exchange rate at the time of the original swap, meaning that there is no downside risk for the Fed if the dollar appreciates in the meantime (although the Fed also does not enjoy upside gain if the dollar depreciates). The swap lines expired February 1, 2010. Except in the unlikely event that the borrowing country's currency becomes unconvertible in foreign exchange markets, there is no credit risk involved for the Fed. Swaps outstanding peaked at $583 billion in December 2008, and have fallen steadily since. The Fed has reported no losses under the program and income of $2.1 billion in the first three quarters of 2009.

The swap lines are intended to provide liquidity to banks in non-domestic denominations. For example, many European banks have borrowed in dollars to finance dollar-denominated transactions, such as the purchase of U.S. assets. Normally, foreign banks could finance their dollar-denominated borrowing through the private inter-bank lending market. As banks have become reluctant to lend to each other through this market, central banks at home and abroad have taken a much larger role in providing banks with liquidity directly. But normally banks can only borrow from their home central bank, and central banks can only provide liquidity in their own currency. The swap lines allow foreign central banks to provide needed liquidity in dollars. Initially, the swap lines were designed to allow foreign central banks to U.S. dollars. In April 2009, the swap lines were modified so that the Fed could access foreign currency to provide to its banks as well; to date, the Fed has not accessed foreign currency through these lines.

Table 12. Central Bank Liquidity Swaps

Federal Reserve				Terms and Conditions	
Swaps Outstanding End of 2009	Swaps Outstanding at Peak	Total Income, First 3 Quarters 2009	Current or Expected Gains(+)/ Losses(-)	Interest Rate	Expiration Date
$10 billion	$583 billion on Dec. 10, 2008	$2.1 billion	$0	Equal to participating central bank's lending rate	February 1, 2010

Source: CRS; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009.

Bear Stearns

On March 16, 2008, JPMorgan Chase agreed to acquire the investment bank Bear Stearns. As part of the agreement, the Fed lent $28.82 billion to Maiden Lane I, a Delaware limited liability corporation (LLC) that it created, to purchase financial securities from Bear Stearns. These securities were largely mortgage-related assets that were too illiquid for JPMorgan Chase to be willing to acquire. The interest and principal is to be repaid to the Fed by the LLC using the funds raised by the sale of the assets. The Fed's loan was made at an interest rate set equal to the discount rate (2.5% when the terms were announced, but fluctuating over time) for a term of 10 years, renewable by the Fed.[31] In addition, JPMorgan Chase extended a $1.15 billion loan to the LLC that will have an interest rate equal to 4.5 percentage points above the discount rate. Thus, in order for the principal and interest to be paid off, the assets would need to appreciate enough or generate enough income so that the rate of return on the assets exceeds the weighted interest rate on the loans (plus the operating costs of the LLC). The interest on the loan will be repaid out of the asset sales, not by JPMorgan Chase.

Any difference between the proceeds and the amount of the loans would produce a profit or loss for the Fed, not JPMorgan Chase. Because JPMorgan Chase's $1.15 billion loan was subordinate to the Fed's $28.8 billion loan, if there are losses on the $29.95 billion assets, the first $1.15 billion of losses would be borne, in effect, by JPMorgan Chase. If the assets appreciate in value by more than operating expenses, the Fed would make a profit on the loan. If the assets decline in value by less than $1.15 billion, the Fed would not suffer any direct loss on the loan. Any losses beyond $1.15 billion would be borne by the Fed. By the third quarter of 2009, the Fed's loan exceeded the value of the assets by $3.1 billion.

[31] Federal Reserve Bank of New York, "Summary of Terms and Conditions Regarding the JP Morgan Chase Facility," press release, March 24, 2008.

Table 13. Bear Stearns Support (Maiden Lane I, LLC)

Federal Reserve					Terms and Conditions	
Loans Outstanding to Fed, End of FY2009	Original Fed Loan Balance	Value of Assets, End of FY2009	Net Income to Fed, Q1-Q3 2009	Current or Expected Gains(+)/ Losses(-), End of FY2009	Interest Rate	Expiration Date
$29.2 billion	$28.8 billion	$26.1 billion	$348 million	-$3.1 billion	discount rate	Securities held long-term.

Source: Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009, Table 38.

Federal Deposit Insurance Corporation

The FDIC has undertaken a significant role in the financial crisis through its standing authority to resolve failed banks and administer the federal guarantees on individual deposits. In addition, the FDIC has carried out several exceptional measures, including a broad guarantee program on debt issued by banks and supporting combined interventions in Citigroup and Bank of America.

Temporary Liquidity Guarantee Program[32]

On October 14, 2008, the FDIC announced the creation of the Temporary Liquidity Guarantee Program (TLGP) to encourage liquidity in the banking system, including a Debt Guarantee Program (DGP) and a Transaction Guarantee Program (TAG).[33] This program was not specifically authorized by Congress; it was authorized under the FDIC's standing systemic risk mitigation authority (USC 1823(c)(4)(G)). Financial institutions eligible for participation in the TLGP program include entities insured by the FDIC, bank holding and financial holding companies headquartered in the United States, and savings and loan companies under Section 4(k) of the Bank Holding Company Act (12 U.S.C. 1843). Although the TLGP is a voluntary program, eligible financial institutions were automatically registered to participate unless they had opted out by November 12, 2008. Eligible entities could also opt out of one or both of the program components. As the program has been extended, participants have been offered the chance to opt out with each extension.

The Debt Guarantee Program guarantees bank debt, including commercial paper, interbank funding debt, promissory notes, and any unsecured portion of secured debt. The program originally applied to debt issued before June 30, 2009, but was extended in March 2009 to apply to debt issued before October 31, 2009. The guarantee remains in effect until December 31, 2012 at the latest. Fees for the guarantees are up to 1.1% of the guaranteed debt on an annualized basis

[32] This section was prepared using material from CRS Report R40843, *Bank Failures and the Federal Deposit Insurance Corporation*, by Darryl E. Getter.

[33] See the initial announcement at http://www.fdic.gov/news/news/press/2008/pr08100.html. See http://www.fdic.gov/news/news/press/2008/pr08105.html, which provides further details of the program.

with additional surcharges of up to 0.5% depending on the maturity length of the debt and whether or not the institution is FDIC insured.[34]

Upon the expiration of the Debt Guarantee Program the FDIC established a limited successor program to "ensure an orderly phase-out" of the program.[35] This six-month emergency guarantee facility is limited to certain participating entities, who must apply to the FDIC for permission to issue FDIC-guaranteed debt during the period starting October 31, 2009, through April 30, 2010. The fee for issuing debt under the emergency facility will be at least 3%. The FDIC has not reported any guarantees issued under the emergency guarantee program in 2009.

The Transaction Account Guarantee insures all non-interest-bearing deposit accounts, primarily payroll processing accounts used by businesses, which often exceed the $250,000 deposit insurance limit. On August 26, 2009, the FDIC adopted a final rule extending the TAG portion of the Temporary Liquidity Guarantee Program for six months, through June 30, 2010.[36] For institutions that choose to remain in the program, the fee will range from 0.15% to 0.25% depending on the institution's risk.[37]

Participation in the TGLP has been widespread with over 7,000 of the 8,300 FDIC-insured institutions participating, most of them in both parts of the program. As of December 31, 2009, total debt issuance under the guarantee program was approximately $209.4 billion. Amounts guaranteed under the transaction guarantee are not separately reported. Approximate fees collected on the TGLP for 2009 totaled $7.6 billion, with $0.6 billion of this from the transaction guarantee portion of the program.[38] Through 2009, the FDIC has not reported any payouts for debt defaults guaranteed under the program; if this trend continues, there would be no cost to the government from the program that would offset the program's earnings.

[34] See http://www.fdic.gov/news/news/press/2009/pr09041.html and hhttp://www.fdic.gov/regulations/resources/TLGP/faq.html.

[35] The text of the final rule establishing the facility is on the FDIC website at http://www.fdic.gov/news/board/Oct098.pdf.

[36] See http://www.fdic.gov/news/board/aug26no4.pdf.

[37] See http://www.fdic.gov/news/news/financial/2009/fil09048.html.

[38] Monthly reports on debt issuance and fees assessed under the TLGP program may be found at http://www.fdic.gov/regulations/resources/tlgp/reports.html.

Table 14. Temporary Liquidity Guarantee Program

FDIC					Terms and Conditions	
Program	Debt Guaranteed Dec. 31 2009	Debt Guaranteed at Peak	Total Income 2009 through Nov.	Current or Expected Gains(+)/ Losses(-)	Fee	Expiration Date
Debt Guarantee	$309.4 billion	$345.8 billion (May 2009)	$7.0 billion	n/a	0.5%-1.1% annualized rate plus up to 0.5% surcharge; at least 3% for emergency extension.	Guarantees debt issued before Oct. 31, 2009, until Dec. 31 2012; emergency extension for debt issued before Apr. 30, 2010.
Transaction Guarantee	Not reported	Not Reported	$0.6 billion	$0	0.15% to 0.25%	June 30, 2010

Source: CRS; FDIC.

U.S. Department of the Treasury

Prior to the passage of EESA and the implementation of TARP, the Treasury had comparatively little authority to intervene in financial markets. It did, however, implement one program intended to address concerns about money market mutual fund failures.

Money Market Mutual Fund Guarantee Program

After the run on the Reserve Fund, a money market mutual fund holding Lehman Brothers commercial paper, there was an estimated $250 billion run on other money market mutual funds. To stop the run, Treasury announced an optional program to guarantee deposits in participating money market funds. Treasury would finance any losses from this guarantee with assets in the Exchange Stabilization Fund (ESF). Treasury announced this program without seeking specific Congressional authorization, justifying the program on the grounds that the ESF can be used to protect the value of the dollar, and guaranteeing money market funds would protect the value of the dollar. After the fact, Congress addressed the money market guarantee in Section 131 of EESA, reimbursing the ESF from EESA funds, but also forbidding the future use of the ESF to provide such a guarantee. The program expired after one year in September 2009. Over the life of the program, Treasury reported that no guaranteed funds had failed, and $1.2 billion in fees had been collected. Over $3 trillion of deposits were guaranteed and, according to the Bank of International Settlements, 98% of money market mutual funds were covered by the guarantee, with most exceptions being funds that invested only in Treasury securities.[39]

[39] Naohiko Babanaohiko, Robert N McCauley, and Srichander Ramaswamysrichander, "US Dollar Money Market Funds and Non-US Banks," *BIS Quarterly Review*, March 2009.

Depositors in the Reserve Fund were not covered by this program, but the ESF was used to purchase its $3.6 billion holdings of GSE securities in order to increase its liquidity.

Table 15. Money Market Mutual Fund Guarantee Program

	Federal Government				Terms and Conditions	
Program	**Deposits Guaranteed/Assets Held End of 2009**	**Deposits Guaranteed/ Assets Held at Peak**	**Total Income, Life of Program**	**Current or Expected Gains (+) /Losses(-)**	**Fee**	**Expiration Date**
MMMF Guarantee	$0	over $3 trillion (life of program)	$1.2 billion	$0	1.5% to 2.3% of shares guaranteed	Sept. 18, 2009
Purchase of Reserve Fund's Assets	n/a	$3.6 billion	n/a	n/a	n/a	n/a

Source: CBO, *Budget and Economic* Outlook, January 2009; U.S. Department of Treasury, press release, December 9, 2009; U.S. Department of Treasury, press release, September 29, 2008.

Joint Interventions

Public Private Investment Program

On March 23, 2009, Treasury announced a new plan to provide financial stability. The Public Private Investment Program (PPIP) consists of two asset purchase programs designed to leverage private funds with government funds to remove troubled assets from bank balance sheets. Perhaps closer to the original conception of TARP, PPIP dedicates TARP resources as equity to (1) acquire troubled loans in a fund partially guaranteed by the FDIC and (2) acquire troubled securities in a fund designed to be used with loans from the Federal Reserve's TALF program and/or TARP. Both funds would match TARP money with private investment, and profits or losses would be shared between the government and the private investors. Private investors would manage the funds and the day-to-day disposition of assets. Treasury originally envisioned assets purchases through PPIP would be as high as $1 trillion (using as much as $200 billion in TARP funds), but to date purchases have been much more modest.

Legacy Loan Program

A legacy loan is a problem loan that is already on a bank's balance sheet, as opposed to a potential new loan or refinance. The Legacy Loan Program is intended to reduce uncertainty about bank balance sheets and draw private capital to the financial services sector by providing FDIC debt guarantees and Treasury equity co-investment to fund private-public entities purchasing problem loans from banks.

There are several basic steps in the Legacy Loan Program as planned. Banks would identify a pool of loans that they are willing to sell. These pools would then be auctioned off by the FDIC to private bidders who have access to a 50% equity contribution by the Treasury. In addition to the

Treasury's equity contribution, the FDIC could guarantee additional loans up to a 6-to-1 debt-to-equity ratio. In an example provided by the Treasury, $100 face value of loans might sell for $84 in an auction. The $84 could be financed with equity investors providing $6, Treasury providing $6 in equity, and other investors providing loans of $72. The FDIC would provide guarantees on the $72 in loans. The investors who provided the $6 equity would manage the servicing of the loans and ongoing disposition of the assets.

As of the end of 2009, Treasury reports no TARP funds committed or disbursed under this program. On September 30, 2009, the FDIC held a pilot Legacy Loan sale, auctioning a portfolio of residential mortgages with unpaid principal of $1.3 billion from a bank that the FDIC had taken into receivership. Residential Credit Solutions placed a winning bid of $64 million to receive a 50% stake in this pool, and will finance the purchase with $728 million of debt guaranteed by the FDIC.[40]

Legacy Securities Program

The second part of the PPIP is designed to deal with existing mortgage-related securities on bank balance sheets. Unlike the Legacy Loan Program, the securities program does not provide an FDIC guarantee. Instead, the securities program is designed to be compatible with parts of the existing TALF program from the Federal Reserve, discussed in greater detail above. TALF was extended to cover legacy CMBS so that it could be accessed by PPIP participants. Under TALF, investors can use ABS as collateral for loans from the Federal Reserve, which can be used to fund the transactions.

There are several basic steps to the Legacy Securities Program (S-PPIP). Investors identify non-agency MBS that were originally rated AAA. Agency MBS refer to loans issued by Fannie Mae and Freddie Mac and non-agency MBS refers to mortgage-related securities issued by other financial institutions, such as investment banks. Private fund managers apply to Treasury to pre-qualify to raise funds to participate in the program. Approved fund managers that raise private equity capital receive matching Treasury capital and an additional loan to the fund that matches the private capital (thus far, the private investor that raises $100 has a total of $300 available). In addition to this basic transaction, Treasury reserves discretion to allow up to another matching loan so that, in some cases, raising $100 makes a total of $400 available.

Nine funds were pre-qualified by the Treasury in June 2009, and as of December 31, 2009, these funds had raised approximately $6.2 billion of private equity capital, matched by $18.6 billion in TARP equity and debt capital. In early January 2010, however, one of the funds reached a liquidation agreement with Treasury and will be wound down.[41]

[40] Federal Deposit Insurance Corporation, "Legacy Loans Program – Winning Bidder Announced in Pilot Sale," press release, September 16, 2009, http://www.fdic.gov/news/news/press/2009/pr09172.html. FDIC reports seven other public-private partnership transactions since 2008, but classifies only the September 2009 transaction as a PPIP transaction.

[41] December 2009 TARP 105(a) Report, pp. 15, 30-32.

Table 16. Public Private Investment Program

Federal Government					Terms and Conditions		
Program	**Funds Disbursed/ Guaranteed End of CY2009**	**Funds Disbursed/ Guaranteed at Peak**	**Total Income 2009 through Nov.**	**Current or Expected Gains(+)/ Losses(-)**	**Interest/Dividend Rate**	**Warrants**	**Expiration Date**
Legacy Securities	$18.6 billion	$18.6 billion	$0.1 million	-$3 billion (CBO)[a]; -$0.3 billion (OMB)[a]	LIBOR[b] plus "applicable margin"	yes (amount unspecified)	No new contracts/modifications to program after Oct. 3, 2010.
Legacy Loans	$728 million	$728 million	n/a		no contracts	yes (amount unspecified)	No new contracts/modifications to program after Oct. 3, 2010.

Source: December 2009 TARP 105(a) Report; December 2009 TARP Dividends and Interest Report; Congressional Oversight Panel September 2009 Oversight Report; Congressional Budget Office, *Budget and Economic Outlook*, January 2010; SIGTARP, *Quarterly Report to Congress*, January 30, 2010; OMB, *Analytical Perspectives, FY2011 President's Budget*, Table 4-7; February 2010; Data on Structured Loan Sales from FDIC.

Note: For legacy securities, funds disbursed to date (not committed). For legacy loans, loans guaranteed.

a. Expected losses for Legacy Securities and Legacy Loans combined.

b. LIBOR = London Interbank Offered Rate.

American International Group

On September 16, 2008, the Fed announced that it was taking action to support AIG, a federally chartered thrift holding company with a broad range of businesses, primarily insurance subsidiaries, which are state-chartered.[42] Using emergency authority, this support took the form of a secured two-year line of credit with a value of up to $85 billion and a high interest rate. In addition, the government received warrants to purchase up to 79.9% of the equity in AIG. On October 8, 2008, the Fed announced that it would lend AIG up to an additional $37.8 billion against securities held by its insurance subsidiaries. These securities had been previously lent out and were not available as collateral at the time of the original intervention. In October 2008, AIG also announced that it had applied to the Fed's general Commercial Paper Facility and was approved to borrow up to $20.9 billion at the facility's standard terms.

The financial support for AIG was restructured in early November 2008. The restructured financial support included up to a $60 billion loan from the Fed, with the term lengthened to five years and the interest rate reduced by 5.5%; $40 billion in preferred share purchases through TARP; up to $52.5 billion total in asset purchases by the Fed through two Limited Liability Corporations (LLCs) known as Maiden Lane II and Maiden Lane III. AIG is contributing an additional $6 billion for the LLCs and will bear the first $6 billion in any losses on the asset values. Any gains from these LLCs will be shared between the government and AIG. The 79.9%

[42] For a comprehensive analysis of federal assistance to AIG, see CRS Report R40438, *Ongoing Government Assistance for American International Group (AIG)*, by Baird Webel.

equity position of the government in AIG remained essentially unchanged after the restructuring of the intervention.

In March 2009, a further restructuring was announced including the following:

- A partial payback of the Fed loan through a debt for equity swap of approximately $26 billion and debt for securitized loan proceeds swap of approximately $8.5 billion.
- Additional future TARP purchase of up to $29.8 billion in preferred shares, at AIG's option.

The debt for equity swap closed in December 2009, with a final amount of $25 billion being credited against the loan balance outstanding and a reduction of the maximum loan amount to $35 billion. Finalization of the life insurance securitization has not been announced. With each restructuring, costs were reduced for AIG and risks were shifted away from AIG to the government. Since the government holds 79.9% of the common stock in AIG, however, a case can be made that the benefits of any restructuring that improves AIG's future profitability mostly accrues to the government.

To date, only the Fed loan and commercial paper bought by the Fed has generated net earnings for the government. AIG has chosen not to pay dividends on TARP funds,[43] and the Fed loans to Maiden Lane exceed the assets' value as of September 2009. In the long run, CBO and OMB estimate losses of $9 billion and $49.9 billion, respectively, on the preferred shares. Estimating long-run losses is highly uncertain, as the firm announced its first quarter of positive net earnings in the second quarter of 2009.

[43] Unlike CPP preferred shares, the preferred shares issued to AIG no longer have mandatory dividends.

Table 17. AIG Support

	Federal Government				Terms and Conditions			
Program	**Outstanding Amount End of CY2009**	**Outstanding Amount at Peak**	**Total Income CY2009**	**Current or Expected Gain(+) /Loss(-)**	**Dividend/ Interest Rate**	**Warrants/ Equity Interests**	**Subsequent Conversion**	**Expiration Date**
Federal Reserve Loan to AIG	$22.2 billion loan	$87.3 billion loan (Oct. 29, 2008)	$1.9 billion (first 9 months of 2009)	-$989 million (provision for loan restructuring)	3 month LIBOR+3%[a]	warrants for 79.9% (later reduced to 77.9%) of common shares	Reduced balance by $25 billion in exchange for equity in life insurance subsidiaries	September 2013
TARP Preferred Share Purchase	$45.3 billion preferred shares	$45.3 billion preferred shares	$0	-$9 billion (CBO); -$49.9 billion (OMB)	10% (dividends paid at AIG's discretion)	warrants for 2% of common shares	$1.6 billion balance outstanding[b]	Preferred Shares outstanding until repaid. No new contracts/ modifications to program after Oct. 3, 2010.
Fed Loan for Troubled Asset Purchases	$33.8 billion in loans to purchase assets	$43.9 billion loans to purchase assets (Dec. 31, 2008)	-$275 million	-$604 million	LIBOR+1%[a]	none	n/a	Securities held long-term.
Commercial Paper Funding Facility[c]	$5.8 billion loan (Oct. 31, 2009)[d]	$16.7 billion (Dec 31, 2008)	n/a	$0	overnight index swap (OIS) rate+1%; OIS+3%	none	n/a	February 2010

Source: December 2009 TARP 105(a) Report; Federal Reserve, statistical release H.4.1, *Factors Affecting Reserve Balances of Depository Institutions and Condition Statement of Federal Reserve Banks*, December 31, 2009; Federal Reserve, *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, January 2009; AIG, *10-Q Financial Statement*, Third Quarter, 2009; Congressional Budget Office, *Budget and Economic Outlook*, January 2010; OMB, *Analytical Perspectives, FY2011 President's Budget*, Table 4-7; February 2010.

a. LIBOR = London Inter-bank Offered Rate.

b. In return for conversion of shares paying a mandatory dividend to shares paying an optional dividend, AIG took on an obligation of $1.6 billion due to the outstanding dividend balance.

c. AIG total also included in overall CPFF activity in section above.

d. Latest date available.

Fannie Mae and Freddie Mac[44]

The Housing and Economic Recovery Act of 2008 (HERA)[45] created a new regulator, the Federal Housing Finance Agency (FHFA), for Fannie Mae and Freddie Mac, and included authorization for the government to take the companies into conservatorship and temporary authority to provide unlimited funds to Fannie Mae and Freddie Mac if necessary. There were no specific limits to these purchases or loans, but they were subject to the statutory limit on the federal government's debt.

On September 7, 2008, FHFA placed Fannie Mae and Freddie Mac into conservatorship.[46] FHFA defines conservatorship as "the legal process in which a person or entity is appointed to establish control and oversight of a Company to put it in a sound and solvent condition. In a conservatorship, the powers of the Company's directors, officers, and shareholders are transferred to the designated Conservator."[47] As part of this conservatorship, the firms signed contracts to issue new senior preferred stock to the Treasury, which agreed to purchase up to $100 billion of this stock from each of them to cover realized shortfalls between the GSEs' assets and liabilities.[48] This $100 billion limit was later raised to $200 billion, and, a week before the authority to sign new contracts expired, the contracts were amended to remove the cap between 2010 and 2012. Treasury also agreed to make open market purchases of new Fannie Mae- and Freddie Mac-issued mortgage-backed securities until its authority expired at the end of 2009. Treasury also agreed that if the companies had difficulty borrowing money, Treasury would create a Government Sponsored Enterprise Credit Facility to provide liquidity to them, secured by mortgage-backed securities (MBS) pledged as collateral. The facility was never formalized or accessed, and expired at the end of 2009. In return for the Treasury support, each company issued the Treasury $1 billion of senior preferred stock without additional compensation, as well as warrants (options) to purchase up to 79.9% of each company's common stock.

On November 25, 2008, the Fed announced it would purchase direct obligations (e.g., bonds) issued by these institutions and the Federal Home Loan Banks and mortgage-backed securities (MBS) guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae, a government agency. The Fed eventually settled on planned purchases of $175 billion of bonds and $1.25 trillion of MBS. These obligations would be purchased through auctions and MBS would be purchased on the Fed's behalf by private investment managers on the open market. Assets purchased under these programs would be held passively and long-term.

According the latest figures, FHFA reports that the Treasury had purchased $110.6 billion of preferred shares and $220.8 billion debt issued by Fannie Mae and Freddie Mac at the end of

[44] This section prepared with the assistance of N. Eric Weiss, Specialist in Financial Economics.

[45] P.L. 110-289.

[46] For more information see the September 7, 2008, statement by Treasury Secretary Henry Paulson at http://ustreas.gov/press/releases/hp1129.htm; and CRS Report RL34661, *Fannie Mae's and Freddie Mac's Financial Problems*, by N. Eric Weiss and CRS Report RS22950, *Fannie Mae and Freddie Mac in Conservatorship*, by Mark Jickling.

[47] Federal Housing Finance Agency, *Questions and Answers on Conservatorship*, press release, September 7, 2008.

[48] For an analysis of options to restructure these two housing GSEs, see CRS Report R40800, *Options To Restructure Fannie Mae and Freddie Mac*, by N. Eric Weiss. For information about the conservatorship of Fannie Mae and Freddie Mac, see CRS Report RL34657, *Financial Institution Insolvency: Federal Authority over Fannie Mae, Freddie Mac, and Depository Institutions*, by David H. Carpenter and M. Maureen Murphy.

December 2009. As of December 30, 2009, The Federal Reserve had purchased $1,012.5 billion of MBS guaranteed by Fannie and Freddie and $128.8 billion of their debt.[49] The Fed earned $1.2 billion on their debt holdings and $11.4 billion on their MBS, offset by $411 million in realized capital losses. The Fed faces no default risk on its GSE holdings as long as the Treasury continues to stand behind the GSEs.

On a risk-adjusted present value basis, CBO estimated that Fannie Mae's and Freddie Mac's combined liabilities exceeded their assets by $291 billion in present value terms in 2009 – a gap that Treasury pledged to bridge with federal funds. In addition, CBO projected that, going forward, the entities will undertake new business over the next ten years with a cumulative net cost to the government of $98 billion in risk-adjusted present value terms (assuming no further policy change to the entities' business activities).[50]

It is doubtful that Fannie Mae and Freddie Mac could repay the large outstanding liabilities in the course of their normal operations. This may require consideration of a larger reform of these enterprises. Previously, the Administration had stated that it would present proposals for the future of the GSEs with the FY 2011 budget, which contained the statement, "The Administration continues to monitor the situation of the GSEs closely and will continue to provide updates on considerations for longer term reform of Fannie Mae and Freddie Mac as appropriate."[51]

Table 18. Fannie Mae and Freddie Mac Support

	Federal Government				Terms and Conditions		
Program	**Asset Holdings End of CY2009**	**Asset Holdings at Peak**	**Total Income CY2009**	**Current or Expected Gains(+)/ Losses(-)**	**Dividend Rate**	**Warrants**	**Expiration Date**
Senior Preferred Stock (Treasury)	$110.6 billion	$110.6 billion	$6.8 billion; $1 billion of preferred stock	-$291 billion for GSE operations to date (CBO)	10%, rising to 12% if dividends are unpaid	79.9% of common stock with strike price near zero?	Contracts cannot be amended after end of 2009
New MBS Purchases (Treasury)	$220.8 billion	$220.8 billion	n/a	n/a	n/a	none	End of 2009
Existing MBS Purchases (Fed)	$1,012.5 billion	$1,012.5 billion	$11.4 billion through Q3	-$411 million	n/a	none	none
Debt Purchases (Fed)	$128.8 billion	$128.8 billion	$1.2 billion through Q3	$0	n/a	none	none

[49] Federal Housing Finance Agency, Current Data on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities, January 28, 2010, http://www.fhfa.gov/webfiles/15387/TreasFED12272009.pdf.

[50] Congressional Budget Office, *Budget and Economic Outlook*, p. 26, January 2009.

[51] Office of Management and Budget, *Budget of the U.S. Government: Analytical Perspectives*, February 1, 2010, p. 352, http://www.gpoaccess.gov/usbudget/fy11/pdf/spec.pdf.

Source: Federal Housing Finance Agency, Current Data on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities, January 28, 2010; Congressional Budget Office, *CBO's Budgetary Treatment of Fannie Mae and Freddie Mac*, January 2010.

Citigroup

On November, 23, 2008, the Treasury, Federal Reserve, and FDIC announced a joint intervention in Citigroup, which had previously been a recipient of $25 billion in TARP Capital Purchase Program funding. This exceptional intervention consisted of an additional $20 billion purchase of preferred shares through the TARP Targeted Investment Program (TIP) and a government guarantee for a pool of $306 billion in Citigroup assets (reduced to $301 billion when the guarantee was finalized on January 16, 2009) through the TARP Asset Guarantee Program. Should there have been losses on the pool, Citigroup exclusively would have borne up to the first $29 billion. Any additional losses would have been split between Citigroup and the government, with Citigroup bearing 10% of the losses and the government bearing 90%. The first $5 billion of government's losses would have accrued to the TARP; the next $10 billion would have accrued to the FDIC; and all further losses would have been borne by the Fed through a non-recourse loan. Citigroup paid the federal government a fee for the guarantee in the form of $4 billion in trust preferred securities paying an 8% dividend rate. The government also received warrants in both of these transactions that were "out of the money" at the end of FY2009, meaning their strike (redemption) price was above the current market price.

On February 27, 2009, Citigroup and Treasury officials agreed that the Treasury Department would convert $25 billion of its CPP investment in Citigroup preferred stock into Citigroup common stock, and cancel the warrants taken by Treasury under the CPP. After this conversion, the U.S. government owned approximately 33.6% of Citigroup common stock. The conversion of preferred shares to common stock worsens the government's relative claims on Citigroup's assets in the even of liquidation. By reducing the overall claims on Citigroup, it improved certain capital ratios and was no longer required to pay the government dividends on these shares. The conversion also exposes the government to more potential risk and potential upside reward. The government's preferred shares had to be redeemed at par value, regardless of the performance of the company while the government's holdings of common stock will rise and fall in value based on the market capitalization of the company. At the end of FY2009, the market value of the common stock had risen by $12 billion compared to what the government had paid – TARP recorded this as a financial gain although it is unrealized. Common stock also confers voting rights to Treasury, which it plans to exercise in limited situations. In addition, the additional TIP preferred shares held by the government were converted into approximately $27.1 billion in trust preferred securities.[52]

In December 2009 Citigroup and the Treasury reached an agreement to repay the outstanding $20 billion in preferred securities and to cancel the asset guarantee. As part of this agreement, Treasury agreed to cancel $1.8 billion worth of the trust preferred securities originally paid as a fee for the guarantee. While the asset guarantee was in place, no losses were claimed and no federal funds paid out. The common equity holdings in Citigroup were still outstanding at the end of 2009.

[52] See page 8 of Citigroup's quarterly SEC Form 10-Q at http://www.citigroup.com/citi/fin/data/q0902c.pdf.

Table 19. Citigroup Support

Federal Government					Terms and Conditions			
Program	Asset Holdings/ Guarantees End of CY2009	Asset Holdings/ Guarantees at Peak	Total Income CY2009	Current or Expected Gains(+)/ Losses(-)	Dividend/Fee	Warrants end of FY2009	Subsequent Conversion/ Amendment	Expiration Date
Capital Purchase Program	$25 billion (par value)	$25 billion (par value)	$932 million dividend payments	+$12 billion (Treasury)	preferred: 5% dividend for first 5 years, 9% thereafter; common: none	cancelled upon conversion to common stock	Converted preferred shares to common stock. Shares outstanding until sold.	No new contracts/modifications to program after Oct. 3, 2010.
Targeted Investment Program	$0 billion	$27.1 billion trust preferred securities until Dec. 2009	$1.6 billion	+$2 billion (CBO); +$1.9 billion (OMB)[a]	8% dividend	188,501,404 (10% of preferred shares issued) with strike price of $10.61	Converted preferred shares to trust preferred securities.	n/a
Asset Guarantee Program	$0 billion	$301 billion (up to $244.8 billion of losses borne by Fed, Treasury and FDIC) until Dec. 2009	$277 million in dividends; $50 million termination fee to Fed	$0 (CBO); +$3 billion (Treasury)	following termination, $2.2 billion in trust preferred securities with 8% dividend	66,531,728 with strike price of $10.61 per share	$1.8 billion canceled upon termination of Asset Guarantee.	n/a

Sources: December 2009 TARP 105(a) Report, SIGTARP, *Quarterly Report to Congress*, October 21, 2009, CBO, TARP.

Note: Assistance to Citigroup through CPP is also included in the CPP Table.

a. OMB reports total TIP gain of $3.7 billion; CRS assumes gain is split evenly between Citigroup and Bank of America.

Bank of America

On January 16, 2009, the Treasury, Federal Reserve, and FDIC announced a joint intervention in Bank of America, which had previously been a recipient of $25 billion in TARP Capital Purchase Program funds. This exceptional assistance included the purchase of an additional $20 billion of Bank of America preferred shares through the TARP Targeted Investment Program and a joint guarantee on a pool of up to $118 billion of Bank of America's assets (largely acquired through its merger with Merrill Lynch) through the TARP Asset Guarantee Program, the FDIC, and the Federal Reserve. The announced guarantee was to remain in place for 10 years for residential mortgage-related assets and five years for all other assets. Bank of America will bear up to the first $10 billion of losses on the assets, with subsequent losses split 90% by the government and 10% by Bank of America. Within the government, the losses were to be split between TARP, the FDIC, and the Fed. Bank of America was to pay the federal government a fee for the guarantee in the form of $4 billion in preferred stock with an 8% dividend rate and warrants to purchase common stock worth $2.4 billion at the time of the agreement. At the end of FY2009, the warrants received through the CPP were "out of the money," meaning the strike (redemption) price was below the current market price, and the warrants received through the TIP were "in the money," meaning the strike (redemption) price was above the current market price.

While the asset guarantee was announced in January 2009, a final agreement was never signed. On September 21, 2009, Bank of America announced that it had negotiated a $425 million termination fee that allowed it to withdraw from the Asset Guarantee Program, canceling the warrants and preferred shares issued for the program. On December 9, 2009, Treasury announced that Bank of America had repurchased the $45 billion in preferred stock previously purchased under TARP. At the end of 2009, no government assistance to Bank of America was outstanding.

Table 20. Bank of America Support

Federal Government					Terms and Conditions		
Program	Asset Holdings/ Guarantees End of CY2009	Asset Holdings/ Guarantees at Peak	Total Income CY2009	Current or Expected Gains(+)/ Losses(-)	Dividend Rate/Fee	Warrants End of FY2009	Expiration Date
Capital Purchase Program	$0	$25 billion until Dec. 2009[a]	$1.3 billion	n/a	5% for first 5 years, 9% thereafter	121,792,790 with strike price of $30.79	n/a
Targeted Investment Program	$0 billion	$20 billion until Dec. 2009	$1.4 billion	+$1 billion (CBO); +$1.9 billion (OMB)[b]	8%	150,375,940 (10% of preferred shares issued) with strike price of $13.30	n/a

	Federal Government				Terms and Conditions		
Program	**Asset Holdings/ Guarantees End of CY2009**	**Asset Holdings/ Guarantees at Peak**	**Total Income CY2009**	**Current or Expected Gains(+)/ Losses(-)**	**Dividend Rate/Fee**	**Warrants End of FY2009**	**Expiration Date**
Asset Guarantee Program[c]	$0 billion	$118 billion (up to $97.2 billion of losses borne by Fed, Treasury and FDIC) until Sept. 2009	$425 million termination fee to government ($57 million termination fee to Fed)	n/a	n/a	n/a	n/a

Source: December 2009 TARP 105(a) Report, Congressional Budget Office, *Budget and Economic Outlook*, January 2010; SIGTARP, *Quarterly Report to Congress*, January 30, 2010; OMB, *Analytical Perspectives, FY2011 President's Budget*, Table 4-7; February 2010.

Notes: Assistance to Bank of America through CPP is also included in the CPP Table.

a. Of the $25 billion of preferred shares, $10 billion were originally issued by Merrill Lynch, which subsequently merged with Bank of America.

b. OMB reports total TIP gain of $3.7 billion; CRS assumes gain is split evenly between Citigroup and Bank of America.

c. Proposed agreement; never finalized.

Appendix. Historical Financial Interventions

Table A-1 presents a brief summary of selected government interventions to assist private firms in past crises, and includes information on the type of assistance, initial outlay, and final cost to the Treasury.

Table A-1. Summary of Major Historical Financial Interventions by the Federal Government

Beneficiary/Source	Action	Financial Commitment	Final Cost to Treasury
U.S. Airlines P.L. 107-42 (September 22, 2001)	Loan Guarantees	Up to $10 billion	None except implicit value of loan guarantees; under $2 billion in loans made.
Savings and Loan Failures P.L. 101-73 (August 9, 1989)	Savings and Loan Failures and Insolvency of Federal Savings and Loan Insurance Corporation	Full faith and credit backing of Federal Savings and Loan Insurance Corporation	$150 billion.
Continental Illinois (May-July 1984)	Recapitalization of insolvent bank	$3.5 billion purchase of problem loans, $3.5 billion borrowing from Federal Reserve, $1 billion purchase of preferred shares	$1.1 billion.
Chrysler P.L. 96-185 (January 7, 1980)	Loan Guarantees	Authorized up to $1.5 billion. $1.3 billion used.	$311 million profit from sale of warrants.
New York City P.L. 95-339 (August 9, 1978)	Loan Guarantees	$1.65 billion in guaranteed bonds	None, except the implicit value of loan guarantee.
New York City P.L. 94-143 (December 9, 1975)	Short-Term Loans	$2.3 billion	None, except the implicit cost of the risk of loan.
Penn Central P.L. 93-236 (January 2, 1974)	Loan Guarantees in the wake of Railroad Bankruptcy	$125 million loan guarantees; $7 billion in federal operating subsidies	$3 billion net loss after sale of ownership stake plus the implicit value of loan guarantee.
Lockheed P.L. 92-70 (August 9, 1971)	Loan Guarantees	$250 million of loans guaranteed for five years with three year renewal; guarantee and commitment fees charged	$31 million profit from sale of warrants less the lost value of loan guarantee.

Sources: CRS, U.S. Treasury, Federal Reserve, FDIC.

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Farm Credit
Greeley, CO
July 7, 2009
To learn more: http://cop.senate.gov/hearings/library/hearing-070709-farmcredit.cfm

Corporate and Commercial Real Estate Lending
New York, NY
May 28, 2009
To learn more: http://cop.senate.gov/hearings/library/hearing-052809-newyork.cfm

Small Business Lending
Milwaukee, WI
April 29, 2009
To learn more: http://cop.senate.gov/hearings/library/hearing-042909-milwaukee.cfm

Coping with the Foreclosure Crisis
Prince George's County, MD
February 27, 2009
To learn more: http://cop.senate.gov/hearings/library/hearing-022709-housing.cfm

Ground Zero of the Housing and Financial Crisis
Clark County, NV
December 16, 2008
To learn more: http://cop.senate.gov/hearings/library/hearing-121608-firsthearing.cfm

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